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Original Articles.

ANALYSIS OF 308 CASES OF TYPHOID FEVER IN CHILDREN, WITH STATISTICAL LITERATURE.*

By K. G. PERCY, M.D., BOSTON.

[From the Medical Department of the Children's Hospital of Boston.]

I WISH to present the analysis of 308 cases of typhoid fever which have been treated in the Children's Hospital of Boston since 1913. This series embraces children from infancy through the twelfth year. Two cases of thirteen are included as twelve, for both had been surgical or orthopedic cases, which showed signs of typhoid soon after their admission or operation.

In compiling these statistics I have procured my percentages from the total number of records which mentioned the point desired and will not bother you continually in giving each time the number of cases in each series.

Age incidence shows statistically 5 cases, or 1.6%, under 2 years; 95, cases, or 31.6%, between 2-5 years; 200 cases, or 66%, between 6-12 years. In the literature of 4717 cases (9, 2, 6, 10, 3, 8, 11) there are 2.2% under two years, 27.8% between 2-5 years, 66% between 6-12 years.

Seasonal Occurrence is but a matter of textbook interest and my statistics show that 51%

were admitted during the months of August, September and October; 11% more were admitted in November. This coincides with 76% given by Adams¹ for July, August, September and October. Yet the appearance of local epidemics in April and May in two years raised their frequency during these months to 13%.

The Type of Onset was noted but seldom, though in general the younger the child, the more sudden the onset, definite sickness occurring over night or during the day. The older children give an indefinite history of malaise for one to seven days before chilliness, fever, headache, epistaxis or diarrhea occurred. Blackader² gives onset as sudden in 13%. Griffith,³ in infants, gives onset as sudden in 35%, rapid in 27%, gradual in 37%.

The Duration of Sickness before Entrance was noted in 268 cases, showing 35.4% under 1 week, 46.2% 1-2 weeks, 13% 2-3 weeks, 2.7% 3-4 weeks, 2.9% over 4 weeks. In other words, 82% of all cases were so sick that the parents felt that their children needed hospital care or the local doctor had made a tentative or positive diagnosis of typhoid before the children had been sick for 2 weeks.

Fever was noted in the histories in 82% of this series. This, I believe, is incorrect observation of parents or negligence of the admitting physician, for Walker⁴ gives 100%, Hand and Gillings 100%, of history of fever. Yet on admission 100% of this series had fever.

Headache was a marked symptom in 57%, and in the children over 4 years old it was noted in 69%. In the literature of 1210 cases (11, 2, 6, 9, 9, 8), headache is noted in 66%.

* Read before a meeting of the New England Pediatric Association on February 24, 1915.

The Spleen showed enlargement to palpation on entrance in 68% of cases and was noted as enlarged to palpation in 79% of all cases some time during their stay in the hospital. The figures given in the literature of 1356 cases (9, 2, 6, 7, 11, 1) show enlargement of the spleen in 70%.

Rose Spots were noted 94 times in 280 careful courses, or 33%, at entrance and a total of 57% some time during the course of the disease. Recurrent crops appeared with relapses or even recrudescence of fever, and have the same significance in children, after the temperature curve has once struck normal, as in adult practice. Of the cases reported in the literature, I find their frequency put at 61% in 2372 cases (9, 2, 6, 7, 11, 1, 5).

Widal's Tests were done on 280 of this series. If positive once, that was sufficient. If negative, they were repeated one to four times, until positive or other evidence found for diagnosis.

80 % were positive on admission.
13.2% more were positive during their stay.
7.8% were negative.

Outside of this list I have five positive to one of the paratyphoid reactions, thus 93.2% of all typhoid cases in this series gave a positive Widal reaction during their course, and this laboratory work was done in our own laboratory, in the City Board of Health Laboratory and at the Harvard Medical School. In the literature I find 88% of 447 cases gave positive Widal.

Let me here review the cases with negative Widal,—16 in all. Of these

- 3 gave history of typhoid in family and ran a typical course.
- 4 had both rose spots and spleens and ran a typical course.
- 4 had enlarged spleens and ran a typical course.
- 1 had rose spots and ran a typical course.

The last 4 I have questioned as real typhoid cases.

- 2 had splenic enlargement and ran a fever less than 3 weeks.
- 1 had questionable rose spots and ran fever for 2 weeks.
- 1 had typhoid history but ran fever for 10 days only.

Probably these 4 would have shown positive paratyphoid agglutinations had they been tried. Of the Paratyphoid cases there were five proven by the agglutination reaction.

Spleens were noted in 2 or 40%
Rose spots were noted in 1 or 20%
No complications.

An average duration of fever of 16 days and
An average stay in the Hospital of 25 days.

White Blood Cell Count was done in 258 cases at or within 3 days of admission.

14% were below 5,000
57% were between 5-10,000
29% were between 10-15,000.
Though 25.6% were in the 10,000 count.

Hand and Gillings⁶ in 111 cases note that

81% were under 5,000
64% between 5 and 10,000; and
27.7% between 11 and 15,000.

Griffith, in 75 infants, reports that the white count was not over 10,000 in 84% of his series.

In the Urinary Examinations I have simply collected, as a matter of interest, statistics in 76 cases where Diazo reactions were done. Fifty-one cases, or 67%, either at entrance or within the first 10 days, were positive. The figures of Adams and Walker (1, 9) in 182 cases show that they found the Diazo reaction positive in 24.8%.

Blood Cultures were done in 17 cases only of this series. Twelve cases, or 70%, were positive. Of the five negatives, three were taken on the 10th day and the Widal on that day was positive; one taken on the 4th day with a coincident positive Widal, and one taken on the 11th day with a coincident positive Widal. Of course this series is too small for correct deductions, but these results are to me quite surprising.

Bowels Activity. During the hospital course 299 cases showed:

Constipation in 52 % of all cases
Diarrhea in 16.7% of all cases
Normal activity in 37 % of all cases

Walker⁸ reports in his 71 cases,

42% showed constipation.
38% showed diarrhea.

Relapses occurred in 60 cases of 300 records where the patients stayed in the hospital until discharged well, or in 18% of this series. Five cases had two relapses. The literature of 1002 cases (9, 11, 2, 5, 1) shows relapses in 10% of cases. Thirteen of the relapses in our series were coincident with increase in diet, 3 with giving of cathartics (A. S.+B. pills or castor oil), 2 probably with getting up too soon, and the rest were unaccounted for.

17 % occurred between the 10-20th day of sickness
(This seems questionable.)
40.2% occurred between the 20-30th day of sickness
17 % " " " 30-40th " " "
13 % " " " 40-50th " " "
3 % " " " 50-60th " " "

Of 59 of these where the duration was noted,

18.6% lasted 7 days or less.
10.2% lasted 7-10 days.
25 % lasted 10-15 days.
30.4% lasted 10-20 days, and
16 % lasted over 20 days, with an average of 13 days.

Griffith noted relapses in 15 infants of his 75, with a duration ranging from 5-19 days.

Hemorrhages of the intestines occurred in 4 cases, one of whom died and another of whom had as its apparent etiology a severe purpura with hematuria. Thus this series shows that hemorrhages occurred in 1.3% of all typhoid cases. In the literature I find 4.4% of hemorrhages in 4691 cases (9, 6, 7, 5, 3, 11, 8, 1), as against Holt's¹² figures of 3% in 946 cases. The hemorrhages in this series are all noticeable on

the chart by rise in pulse and temperature, and in three cases with a rise in respiration. They were all noted clinically at or soon after their onset, before the appearance of tarry or bloody stools and were treated by starvation, morphine and cold locally to the bowel in 3 cases.

Perforation of the bowel does not enter our series, though the literature of 2788 cases (4, 6, 7, 11, 8, 1, 13) shows an incidence of 1.8%, as against Holt's¹² figures of 1.1% in 1028 cases.

Complications were noted in 102 cases, or one-third of this series. In this series I have included otitis media, which appeared 51 times. Of those having otitis, 78% were 4 years or under, and justly this cannot be classed as a typical typhoidal complication in our knowledge of its frequency in debilitated children in hospital wards. Thus without otitis we have complications in 51 cases, or 16% of this series. Yet, further, I had included bronchitis as a complication. It surely is to me a more serious complication than otitis and often seems to have a very definite relation to typhoid, yet without this complication and otitis, our percentage of cases having complications fall to 9%. G. Andreoli¹³ in the *Thèse de Paris*, 1913, No. 430, gives the percentage of complications in 1295 cases as 10.6%. Of our series 50% had otitis (and only 1 mastoid), 24% had bronchitis, 13% boils or superficial skin infections, 5% meningismus, 3% pneumonia, 3% parotitis, 3% abscesses, 2% jaundice, nephritis, purpura and osteomyelitis, 1% intestinal hemorrhages and pyelitis, and single cases with phlebitis, meningitis, cholecystitis, empyema (not typhoidal), psychosis, deafness, noma and colitis.

On the question of *typhoidal insanity* in childhood, I wish to quote D. L. Edsall's¹⁴ statistics of the literature of 89 cases, where 63 recovered, 33 remained insane, though 43 died during the course of typhoid.

The average length of stay in the hospital for 300 cases that remained until convalescence or death was 5 1/3 weeks, or in other figures, 73% left before the 42nd day.

Mortality. This series shows a mortality of 2.9% in 306 cases. (Two cases which were discharged against advice are excluded.) In other words, 9 died.

1. 10 years old on 36th day from toxemia and in relapse.
2. 13 years old on 46th day from toxemia and septicemia following a surgical operation previous to first symptom of typhoid.
3. 5 years old on 33d day from int. hemorrhage and noma with coincident measles.
4. 6 years old on 7th day from toxemia (living 12 hours after entering hospital).
5. 3 years old on 6th day from toxemia.
6. 7 years old on 30th day from toxemia following mastoid infection.
7. 4 years old on 35th day from otitis media and meningitis.
8. 1 year old on 39th day from pneumonia, otitis and enterocolitis.
9. 2 years old on 22d day from otitis and bronchopneumonia.

Of the 9 cases, 7 gave history and ward record of diarrhea, 5 gave history of relapse, 2 gave history of infection through other members in their family. In the literature of 6732 cases (9, 4, 2, 6, 15, 8, 11, 7, 1, 16, 17, 18, 19, 20, 21) the mortality is given as 5.5%, against Holt's figures in 2603 cases of 5.4%. I have not included in my list the earlier statistics of Hebern, Guinian, Breman and Torias, given in *Pediatrics*, New York, 1907, Vol. xix, p. 530, as 14%, 17%, 17% and 12%, respectively; nor have I included Griffith's mortality in 75 infants as 16%.

On treatment, my statistics have but little to offer. This series began, luckily, after the time that antipyretics were in vogue, and I find no note of this type of therapy, save the giving of sodium salicylate in a case complicated by arthritic pain and tonsillitis. Intestinal antiseptics were not tried either. Urotropin was occasionally used on various services toward the end of convalescence in hopes of discharging the cases with urine free of typhoid bacilli, yet in two cases where this was done and sterile cultures of urine planted, both cases showed positive cultures 3 and 5 days before discharge. Hydrotherapy has been almost universally used for temperatures over 103.5° F. A good number of histories have no treatment noted and but rarely have the results of this therapeutic measure been commented on in the after notes, save in cases where the "child did not tolerate the cold pack," or "fretted over each administration of cold sponge" or the note is made that "the sponge seemed to quiet the delirium." The routine is to give sponges at temperature of 85° F. for temperature 103.5 or over. Despite this negative evidence, I am personally convinced that hydrotherapy has a very definite power for good, not only as a sedative, but as a vascular and cardiac tonic, though, as in all therapy, it should be carefully adapted to the individual patient.

Medicinal Therapy divides itself into stimulants, sedatives, and symptomatic use of drugs. *Stimulants* for vascular inefficiency were used in 41% of all cases, though I did not mention in my complications cardiac weakness as shown by signs of myocarditis; its frequency is far greater than I have been led to believe by perusal of the literature. A rapid, thready, poor tension or irregular pulse is of common occurrence in the long protracted fevers or in cases of marked inanition. To my mind this frequency can be greatly diminished by a higher caloric diet, but when present, it has been well combated by the use of strychnia, in the early days by brandy, and occasionally by digitalis preparations and caffeine. *Sedatives* were used but rarely in delirium and occasionally to tide over a case in extreme pain from some complication. *Symptomatic Drugs* which were utilized, comprise antiseptics for skin and mouth infections, those for bronchitis and occasionally for diarrhea.

Cathartics, I believe, have no place in the medicamentarium of typhoid therapy. In three instances, of the very few noted in this series,

relapses began on the day of or the day following their administration.

Enemata, on the other hand, are an essential, harmless and most efficient means of therapy in this disease in childhood.

Autogenous or *stock vaccines* were used in 5 cases with no marked beneficial results, and in 2 of long protracted febrile state their use was followed by complications in both instances. This series is too short to be of value, but the results of vaccine treatment were far from startling, and to me the scientific principle is wrong.

Leucocytic Sera were used in three cases with no apparent beneficial effect on the temperature curve, the course of the disease, relapses or complications, as two out of these three had either a relapse or a complication. Again I give these meagre statistics as a matter of interest only.

Lastly, I wish to mention diet. Here again statistics are of little help unless the individual daily food charts are available for each patient. Luckily such were available in many instances. Our early statistics show the administration of "liquid diet" in the early, or throughout the febrile phase of the disease. I have tried to make note of the result of an increase in dietary upon the clinical charts. In 171 cases noted, as beginning on liquid or milk diet, 68 showed a rise in temperature on the day of or within two days of the addition of "soft solids." These rises in temperature were never over 101°, they had some slight coincident rise in pulse that lasted from 4 to 12 days, or an average of 6.3 days. This series omits 13 cases which I have previously made mention of as true relapses. Furthermore, it has been the custom in the last few years to give every patient a fuller dietary from the start, and I can find no increase in frequency of relapses, but do find an actual decrease in the duration of the disease, both as to the febrile state and the total length of stay in the hospital. Typhoid children can be made to take a relatively high caloric diet, bland, non-irritating and not tiresome, and I am convinced that it is a great essential for the success of the treatment.

IN CONCLUSION.

Typhoid is a relatively common disease in childhood and far more prevalent in infancy than formerly supposed.

Symptomatically it is ushered in very much as in adults, with headaches, fever, malaise and abdominal pain as the most frequent symptoms.

In this series and in a large collected series from the literature,

The spleen is enlarged in 71% of all cases.

Rose spots are seen in 61%.

Positive Widal's are seen relatively early in 88.2%.

White blood count is below 10,000 in 73%.

The fever lasts an average of 25 days.

Relapses occur in 11.8%, intestinal hemorrhages in 4.2%, perforation of intestines in

1.2%, complications in 10.6%, and the mortality is 5.3%.

Therapeutically. A diet, bland, high caloric, and suited to the individual need of each patient, is most important.

Hydrotherapy seems to have a vital place in the treatment of the febrile and delirious stage of the disease.

Enemata are essential in a high percentage of cases.

Stimulants and other symptomatic drugs are to be used as need arises, for typhoid is a disease, cured not by medicine, but by good nursing and keen, sensible therapy; for, as Dr. Morse has said, "the tendency in all these cases is to get well, no matter what the treatment, unless it is absolutely bad."

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Complete Bibliography of Literature of Typhoid in Infancy and Childhood since 1890 now at Boston Medical Library.

THE THERAPEUTIC VALUE OF OCCUPATION FOR THE INSANE.

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I.

For some years past much has been said about the therapeutic value of occupation and diversion for the insane. However, in reports of a great number of insane hospitals, fifty and seventy-five years ago, the same idea was expressed as at the present time and the various occupations were mentioned.

In the report of the Trustees of the Worcester State Lunatic Hospital, dated Dec. 30, 1835, we find the following:—

"Experience has proved the vast importance of labor and its utility. There are in the hospital more than a dozen able-bodied men who can labor daily in the field, and as many others that may be employed a part of the time profitably and pleasantly. An institution of this

kind will have a large number of working men among its inmates at all times. We find these always inclined to labor. Shut up in halls, or in their cells, they are unhappy, restless, discontented and in consequence less mild and docile, often troublesome.

"Another beneficial influence of labor which operates alike on the sane and insane mind, and which greatly enhances its utility, is the idea of production for benefit. This idea of practical utility, this witnessing the results of their own labor in the improvements of the grounds and walks, in the culture of flowers, the growth of vegetation, the manufacture of tools and implements, and such comforts as contribute to the benefit of those who are within the reach of their influence,—all these and similar pursuits lead the mind from the consideration of causes to their effects."

The city of Boston established a hospital for her insane at South Boston in 1839. This was the third hospital in the state, the first being the McLean Hospital, in 1818; the second, the Worcester State Hospital, founded in 1833. The Boston City Hospital was placed between the Workhouse and the House of Correction. When it was completed the insane were taken from the penal institutions, where many had been kept in strong wooden cages on wheels. In fine weather, as an extraordinary touch of kind treatment, these cages were drawn out of doors. When the hospital was ready it was a simple matter to transfer the insane in their cages to the new building, where they were at once released and treated like human beings.

Dickens, in his "American Notes," in describing his visit to the Boston City Hospital in 1842, speaks of the patients as working, reading, playing at skittles and other games, and said, "In the garden and on the farm, they work with spades, rakes and hoes. For amusement they walk, run, fish, paint, read, and ride out. They also have a weekly ball."

The Taunton State Hospital was opened in 1854. In the report of that year the Superintendent, Dr. George C. S. Choate, has written as follows:—

"In traversing the halls of lunatic hospitals, even those where no expense has been spared in any department, every person must be struck with one great want which stares him in the face at all points. I mean the lack of occupation."

"At least two-thirds of the inmates of lunatic hospitals are capable of some employment and need it as much as sane people, or more. And yet, even in institutions where the greatest pains have been taken to introduce new amusements, and everything which can make the time pass agreeably and profitably, a large portion of it is spent by most of the inmates in sheer apathy and idleness."

"In acute cases, after the excitement has passed away, I believe that employment of some sort is more important than it is in any other

situation in which a man can be placed. The great object of treatment in such cases must obviously be to divert the attention from self, from the subjects of delusion, and fix it, without exercising it too severely, on some other interesting object. This can in no way be so effectually done as by interesting the patient in some occupation."

"In melancholy cases, what so likely to be beneficial in calling the mind away from gloomy meditations? And in all how necessary is employment to induce sleep, which is so frequently disturbed in insanity, and to promote the health of all the animal functions, which is so important to health of mind."

In this first year 30% of the men and 17% of the women are noted as employed.

From report of 1867 of the Northampton State Lunatic Hospital:—

"Man was made for occupation and activity. They are essential to his well being, both bodily and mental. What is true of mankind in general, in this respect, is true of the insane. Occupation, either bodily or mental, is desirable for all whose health will admit of it; and the occupation should, as far as practicable, be such as will contribute to health by sufficient corporeal exercise. This is especially true in respect to all who have been accustomed to manual labor."

"It may still be asserted, as in some earlier reports, that not less than three-fourths of all the labor upon the premises, within doors and without, is performed by patients. . . . The mass of effective laborers are the incurable beneficiaries of the state. But there are many exceptions to this rule, and it not infrequently occurs, in all classes of curable patients, that when the person begins to work we feel a full assurance that he will be restored to mental health; and this assurance is rarely falsified."

Then follows a list of the articles made and repaired (pillows and mattresses). The Superintendent adds: "It is to be regretted that there is not more of this work, so well adapted to the capacity of a large number of patients; could it be increased threefold, that increase would be a great blessing."

In this same report of 1867, under "Exercises and Entertainments," the Superintendent has written: "The plan of having a diversity of exercises and entertainments within doors, which was adopted anterior to the time of the last annual report, has been continued, and not only the actual number, but the proportion of patients partaking in those exercises has been increased."

A list is given showing the number of times in which the patients have assembled in the course of the year, for each of the several exercises or entertainments:—

1. Exercises in the chapel, on the sabbath:
Divine worship in the afternoon 52 times
2. Exercises in the chapel, on regular evenings:
Scriptural reading and sacred music. 177 times

Poetical reading and sacred music...	24 times
Prose reading and sacred music.....	24 "
Lectures.....	45 "
3. Exercises in the Rotunda:	
Dance in the evening.....	26 "
4. No gathering.....	17 "
Total days in the year.....	365

The Superintendent has expressed his views on the desirability of Chapel services on Sunday and states that more than two-thirds of the patients of the hospital attended during the year.

The evenings of Scriptural reading and sacred music, the patients met together in the chapel and a chapter from the Bible was read and two hymns were sung, accompanied by the organ. The average attendance for the year was nearly two-thirds of the number in the hospital.

The selections of poetry read included the pathetic and humorous, and the average attendance was 1 and a decimal more than the average attendance of the Scriptural evenings.

In this year of 1867 prose readings were given for the first time, and the report records that the "success was far beyond anticipation." The average number attending these readings was 4 and a decimal more than the number attending the poetical evenings.

The 45 lectures covered a variety of subjects, including: "Description of Dublin," "Oxygen, with Experiments," "The Howlers or Howling Dervishes of Constantinople," "The Reformation," "Structure and Functions of the Liver," "Nature and Causes of Insanity," "Exhibition with the Magic Lantern." The average number attending was 9.12 more than the number attending the prose evenings; this number was only 18 less than the average attendance upon the Sabbath.

Many of the patients considered the six lectures on insanity as the most interesting of the course. To what extent they applied to themselves the knowledge gained, could not be determined, but the doctor suggested that many of them applied much that was said "to their neighbors."

In closing this part of his report he has said, "I believe these exercises to be among the most valuable means for the attainment of the important object for which the hospital was founded."

The library of 1250 books was accessible to the patients on certain days. Magazines, weekly and daily papers were read by the patient.

Under amusements, the bowling alley, billiards, baseball, and swings are mentioned and apparatus for indoor games had been purchased.

The report for the year 1868 is similar to the year 1867, but an increased average in attendance is noted at the entertainments, although 24 days are mentioned when no entertainment took place. Backgammon and battle dore are also mentioned among the games.

Again in 1869 we find the Superintendent writing that five times as much work could be done, such as renovating beds, if they had it.

In this year prose reading numbered 103

times and Scriptural reading 83 times; 16 days are mentioned when there was no assembly.

The report of 1873 states that that year for the first time in the history of the hospital an attendant was regularly employed throughout the year for the special purpose of working out of doors with the patients. In all suitable conditions of weather he was out with from six to twelve men, ready to do anything which appeared necessary or proper to be done. In stormy weather the same company found employment within doors. In this report is stated the following:—

"It has long been considered that one of the principal elements of the superiority of the British, and some of the continental hospitals, over the American institutions of the same kind, is the extent to which manual labor is introduced into them. It is not alone more extensive than here, but it is better organized, and consequently more constant and systematic. At most, if not all, of the county asylums of England, all the clothing, for both men and women, with, perhaps, the exception of hats for the former, is made upon the premises and mostly by patients.

II.

The work of the Hospital is to recover to such whose condition still makes it possible, the use and enjoyment of their bodily and mental functions, and to restore them to their place in life and society. To appease, and to conceal by appeasing, the condition of those who are considered to be outside of recovery.

It is claimed that occupation of some kind is necessary to the contentment and well-being of every individual. To the normal person occupation gives a deep and persistent interest in the varied phases of life, also diversion and pleasure. To many that are sick it can give much the same, while to the mentally sick it is acknowledged to be the most powerful single agent in a curative treatment.

Training and mental occupation exercise a most salutary effect upon the mind and strengthen it against many causes of insanity.

Observation and experience have shown that occupation of the hands leads to the diverting of the mind from itself. That the gradual and progressive training in hand and mind occupation exercises a growing force in the patient's recovery.

As a remedy, occupation brings in a new and outside interest, which may go far toward bringing about a self-forgetfulness, mental and physical. It affords a training in habit, which if well ordered tends toward contentment and confidence. Occupation has a socializing effect upon the patient, lessens restraint, restlessness and insomnia.

Mental enfeeblement of the individual is the result of insanity, and by idleness this enfeeblement is continued or increased. Only by persistent effort, and use of the functions which re-

main to him, is the patient enabled to retain them.

The result of all mental action is an increased power to act, and a tendency to act again in the same way. Development and training mean an increase of the mind's power, and a tendency to act again in a given activity.

The failure to employ the faculties of the mind can cause a low condition of habit, and produce indulgences and vices directly favorable to insanity; while a mind regularly engaged in sound and healthy exercises escapes such demoralizing tendencies. Idleness gives opportunity for introspection. The old adage, "Satan finds some mischief still for idle hands to do," was never more true than in relation to the insane.

Occupation should be adapted to the capabilities of the patient. The work should be stimulating and attractive, and if possible allow the patient an opportunity to express some individuality. If it fails to stimulate, the mind wanders and it is time for some change. Forced attention is not only wearing but ineffectual. Too close attention is tiring and exhausts the nervous energy, thus reducing the power of attention. Work should divert and entertain as well as occupy.

It is often said that no rule can be laid down and that individual cases are treated differently. However, in most cases I believe occupation should be somewhat varied; one form should not be continued too long or long enough to become monotonous and merely mechanical, for then the tendency of the patient is often to drop it. Monotonous or long continued work is known to have a depressing, deadening or irritating effect even upon the mind of the normal person. Hard work, if varied, is less likely to upset and become injurious.

With many of the mentally sick there is little of the power of judgment or reason. But what is taught can be acquired only by the patient using his own activity. So that occupation is desirable which secures from the patient his best mental effort. Successful employment means interest, and the methods must be individual. It is said that the growth of the power of attention may be viewed as a progressive formation of habit. As a general rule, the mind distinctly perceives only those objects to which it gives some degree of attention, the exceptions being those cases in which the mind is spontaneously incited and held by the attractiveness of the object perceived.

"The attractive force of a stimulus is determined not simply by its quantity, but also by its quality—by its agreeable, disagreeable, or indifferent character," also by association.

Unusual or unfamiliar sights and sounds may arouse the attention momentarily, but the quality of being interesting must be present if the attention is to be held. This may depend upon some aspect of the object, as being unusual, possessing beauty of form or color, suggestiveness,

association, or some other attribute; but much depends upon the mental vigor at the time. As we all know, a mind preoccupied is unfavorable to attention, and to arouse it is needed a stimulus of greater force.

These very facts prove that in occupational therapy in a hospital it is necessary to have many forms of occupation; for what may prove an attractive stimulus to one may not necessarily prove so to another.

We are interested in things we understand, or of which we have at least some knowledge. If we know nothing of mechanics we are not likely to be interested in a complicated machine. On the other hand, if we have some knowledge of basketry, weaving, or lace making, the sight of an unusual basket, a beautiful woven scarf, or an exquisite piece of lace immediately arouses our interest and secures our attention. Many people are keen observers in relation to those things which interest them, while they can be quite unconscious of other surroundings. Interest invites and sustains attention. Many times that which is associated with a pleasurable interest or is interesting and new will secure and hold the attention where other attempts have failed. Curiosity may also be a powerful aid. Many times, if the attention is secured, interest is aroused. If this can be repeated then the interest comes more easily, and harder tasks become possible.

Each response of the mind toward the doing of hand work renders it quicker in responding again toward the same kind of stimulus. What is at first difficult and irksome tends to become easy and pleasurable, as practice lends skill and capability. Although a process may be interesting in itself, it would become irksome if the result did not help to sustain the interest.

When an impression is made upon the mind, to become effective it must be again repeated, and over and over. Without practice and repetition the impression gained loses effect after an interval the frequency of the repetition is the determining factor, and not only the number of repetitions. A dementia precox patient may be able to make bobbin lace, but it means the steady application of the teacher and pupil for a period each day until the pattern is mastered. To repeat the lesson with the patient one, two, or three times, and then leave her alone for a week, would probably mean that the process would have to be begun all over again. On the other hand, if these lessons were continued too long at one time, or too often, they might still be unsuccessful.

Occupations vary in their action upon the patients. With some, the employment which brings in color and texture appeals strongly. Others are interested in form, while others are pleased with the problematical side, or a simple mechanical process.

Color yields a great and varied pleasure and is as stimulating to many as music and is necessary and useful. Color in itself tends to depress

or exhilarate. Monotony of color is both depressing and tiring.

In one hospital a girl was weaving toweling. It was the same thing yard after yard, and she seemed to have but little interest in it and frequently left it to wander about the room. The experiment was tried with her of weaving near the ends of each towel a border, using a color. Perhaps one towel would have bands of blue and another of red, the two towels being separated with a line of color. This simple device changed the whole aspect of the work and was successful in keeping the girl interested. With many women the pleasure of weaving lies almost wholly in the use of color.

A dementia precox patient, who was weaving the plain centre of a scarf, was always asking for color. Finally the desire to weave the colored border prevailed, and the scarf was finished several inches shorter than was originally planned. After this experience her next weaving was planned to include lines of color across at intervals of two or three inches.

Suggestion enters life in a hundred forms and ways. It varies with individuals. While some are most sensitive to a suggestion, with others an opposite impulse to the suggestion may be awakened. This is an important factor in the daily life of the insane.

The natural impulse of children to imitate those about them, in all sorts of actions, is seen again in older people. If we notice only, for example, the latest fashion, as seen in dress, dancing, or other amusements, we at once see that grown-up folks are merely older children. The mentally sick are no exception to the rule. The tendency to imitate those about us is a very important aid to development; and this impulse may be of great value in the work of occupation in the hospital.

If the majority of the patients are doing something, the natural impulse (even of many demented patients) is to try to follow the example. On the other hand, if the majority are doing nothing, there will be an atmosphere of unrest, if nothing worse, and there will be little that is conducive to work and healthful condition.

Environment, as with the normal person means much; plenty of space, air and sunshine are necessary for well being. As the report of Dr. Earle said, the effect of music, quiet recreation, social enjoyment, dancing, pictures, games and religious exercises,—each has its place. Play aids industrial, social and moral efficiency. Whatever our vocation, our recreation is that which acts refreshingly upon mind and body and relieves the monotony of that vocation.

The question whether a patient should be given the same kind of work that he or she was accustomed to do in previous life, or should be interested in something quite different and new, is one that no fixed rule can determine. With some patients it is noticed that their interest is awakened by doing something that brings back a memory of their past life and experience.

With others the reviving of familiar work can but revive associations that have a depressing and detrimental effect. Each case, in fact, has to be studied and treated separately, and according to its own conditions, at many times. An English physician has stated as follows in favor of giving a wholly different kind of occupation: "A town-bred artisan, such as a tailor, admitted in a low state of bodily health, if sent out daily for gentle employment in the garden, generally becomes greatly improved physically, and concurrent with the physical improvement, often comes gradual restoration of reason. So also a rustic, inclining to dementia, if put to work at a trade often brightens up considerably, whereas, if sent out to work on the farm or in the garden, employment that he has been used to from birth, would set to work at it mechanically, and it would be of but little benefit to him."

A sense of accomplishment can act as an incentive to the insane as well as to the sane. Work should be graded, going from the simple to the complex. If it is too simple, interest will flag; on the other hand, if it should be so complicated as to be unsuccessful, it may take weeks to undo the depressing effect.

The old time curious, rightly called crazy, things produced should make way for something of real value to the patient, the institution, or the community. Although it is better for a patient to make or be employed on almost anything rather than be empty handed and idle, yet the health-giving value is greatly increased if the work done is something really worth while. It inspires self-respect, induces to further effort and undertaking; and whatever inspires and encourages produces a mental and bodily state of real restorative value to the patient.

The mere fact of giving materials to patients is not enough to produce the desired effect. Some teaching is generally required beside gentle persistency and tact.

The method of teaching should be one's own, and should embody one's own ideals and convictions, and should fit one's individual power. The effectiveness of teaching comes from what one puts into it. Honest praise for effort, result, or both, is worth while wherever it may be. Appreciation is desirable, but a critical attitude is often deadening to all further effort.

While occupation of the patients is of economic value to the institution, lessening the number of attendants needed and the wear and tear upon the attendants, and all concerned, this aspect of the matter should be secondary and kept subordinate to the main purpose—the remedial effect and value of the work upon the patient.

In many cases the knowledge and training gained by occupational work in a hospital has enabled the patient to go back into the world and apply the acquired knowledge and handicraft as a means of livelihood.

To the incurable, occupation appeases the

hopelessness of life and means that each day is made more bearable, and that something akin to happiness is put in place of a dull and colorless existence.

THE TEACHING OF APPLIED THERAPEUTICS AT TUFTS MEDICAL SCHOOL.

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THE teaching of therapeutics, one of the most important subjects in the medical curriculum, is one of the weak points in American medical schools. The fundamentals of drug treatment are taught by lectures and laboratory exercises in the department of pharmacology, and the actual details of treatment incidental to the instruction in clinical medicine; but no systematic instruction is usually given in the general principles of therapeutics as an independent subject. During the past year an attempt has been made to strengthen the teaching of therapeutics at Tufts Medical School by giving, in addition to such instruction as is usually given, a course which shall bridge over the gap between pharmacology, physiology, chemistry, and the other fundamental sciences upon which treatment is based, on the one hand, and the actual details of handling patients from day to day, on the other hand; and shall serve as an introduction to the general principles of applied therapeutics. Though the course is still in an embryonic stage, various expressions of interest on the part of the students, colleagues, and others have influenced me to make a statement concerning its purposes, scope, and methods in the hope that such a statement might stimulate helpful criticism.

It is, of course, true that the forms which any one disease may take,—depending on the severity of the disease and on the fact that different patients react so differently to disease with difference in age, sex, constitutional characteristics, and other factors,—show so many different clinical pictures in different patients, and change so much from day to day in any one patient, that the treatment of every new patient is a new problem, and that, therefore, the actual details of treating sick patients can properly be learned only by long continued bedside observation of many patients under treatment, by the inductive experimental methods now used in teaching the subject in the departments of clinical medicine. We treat individuals rather than diseases. And this is especially true in the case of chronic diseases where the exact details of treatment depend largely on the severity of the disease, on the extent to which function is disturbed, on the condition of the patient as a whole, factors concerning which good judgment is gained,—since exact measurements play but a

very small part,—only by long, clinical experience with cases of all grades of severity. But there are, nevertheless, certain general principles relating to the purpose and methods back of the many details which cannot well be taught incidental to the other instruction in clinical medicine and which deserve and need treatment as a separate subject.

Pharmacology deals with some of these principles of treatment but not all, for this is not the province of pharmacology. Pharmacology deals with the action of chemical compounds in the body, with the physiological action of substances quite independently of their therapeutic effect; it deals with the action, not only of those substances which are useful in therapeutics, but also those like muscarin, curarin, and saponin, which are not useful in therapeutics and whose action is chiefly harmful; furthermore, in the case of useful drugs, pharmacology deals not only with those activities which are of therapeutic significance, but also those which are not. Although until very recently this was not strictly true, and pharmacology could hardly be said to exist as a science independent of practical therapeutics, it has now developed to such an extent that it is pursued as an independent science without reference to the practical needs of medicine in the same way, and with the same justification, that chemistry, and physiology,—both of them once a part of practical medicine,—are now pursued as independent sciences. In actual practice, drug treatment is nearly always combined with other forms of treatment; agents such as heat, cold, baths, rest, exercise, posture, diet, massage, electricity, x-rays, high altitude, and sunlight are very extensively used in therapeutics. An intelligent application of these other agents depends upon a knowledge of physiology, physics, chemistry, psychology, and other factors, as well as pharmacology, and the other factors,—even such a one as the personality of the physician,—are, in certain instances, of more importance than the strictly pharmacological knowledge. A knowledge of pathology and clinical medicine, especially, though not necessary for the pharmacologist, is an absolutely necessary pre-requisite for the study of therapeutics; the therapeutically important questions relating to the effect of pathological conditions in altering the action of drugs,—we now have abundant evidence showing that drugs may have a different effect in pathological conditions from what they have in health,—and to when and how to use drugs in disease is outside the province of pharmacology; furthermore, questions relating to diagnosis and prognosis which have to be taken into consideration in therapeutics, and good judgment in estimating the effect of treatment on the clinical condition require a knowledge of clinical medicine. A knowledge of pharmacology alone, then, is not a sufficient basis for the treatment of diseased patients.

There is, therefore, a deficiency in the usual medical curriculum and an urgent need for a

course dealing with the general principles of applied therapeutics, a course which shall bridge over the gap between pharmacology and the other fundamental sciences upon which treatment is based and the actual details of treatment themselves. It is such a course that has been added to the medical curriculum at Tufts. *Since students take up the study of medicine for the purpose of learning to treat sick patients, this course covers the most important department of medicine; the practical purpose of pathology, physiology, diagnosis, and other fundamental branches is to help us treat the patient; the details of therapeutics as demonstrated in the subsequent clinics are shown as illustrations of the practical application of these principles of therapeutics.*

The first question taken up is that of the purpose of treatment. This question, not such a simple one as it may seem at first, and one often lost sight of in actual practice, is very fundamental, since upon the point of view adopted toward it depends the whole character of the course in applied therapeutics. When the surgeon treats a broken bone or removes a diseased appendix he aims at ridding the patient of all evidence of disease, but when the physician uses digitalis, diuretics, and other agents in cases of heart disease his purpose is neither to remove a diseased valve nor to make it whole, but to improve cardiac function. In both cases, however, the aim is,—and this is the fundamental purpose of all treatment,—*to improve the functional efficiency of the patient.* How we go about improving the functional efficiency of a sick person depends upon the nature of the disease, the principles of treatment in acute and chronic diseases, for example, showing certain distinct differences.

The ideal of treatment in acute disease is complete removal of disease, diseased material, or the causes of disease,—the antitoxin treatment of diphtheria, and the removal of a diseased appendix are examples. In treating those acute diseases for which there is as yet no known specific cure the principle of treatment is very simple; in the hope of increasing the resistance of the patient to the disease, we support his strength, promote his comfort, give him in its broadest sense the best hygienic environment possible. It is clear that such methods are aimed not directly, but only very indirectly, at the disease itself; the disease itself is left to run its course under conditions which, so far as our knowledge goes, and so far as we can influence the conditions, we believe to be most favorable for the patient. Though we hope and believe that under such treatment the patient's chances of succumbing are decreased, it is, nevertheless, often questionable how much such methods shorten the course of the disease, or influence it in other ways. The therapeutics of acute disease are, therefore, largely a matter of detail; the general principles of treatment are comparatively simple.

In chronic disease the ideal is somewhat dif-

ferent. When the heart, for example, is so far diseased that the amount of work which it can do is less than the amount of work required of it,—when compensation fails,—the leaky valve or other anatomical change responsible for the condition cannot be removed or made whole. This is not necessary; the patient with heart disease often knows nothing of the anatomical changes responsible for his condition; he wants the symptoms alleviated so that he will be more comfortable and able to do his work. In other words, it is not *anatomical integrity*,—about which he may know nothing,—which interests the patient, but his *functional efficiency*. On account of the very great reserve powers,—the high factor of safety,—of all our organs, an organ may be the seat of disease and yet be functionally efficient; it has been calculated that the normal heart, for example, can do six times the work ordinarily required of it; and we know that the factor of safety of certain double organs, like the lungs and kidneys,—since one of the pair can be entirely removed without danger to the patient,—must be at least one hundred per cent.; but with severe disease, there comes a time when the affected organ cannot perform the amount of work ordinarily required of it, and the physician is called in to restore equilibrium between the work required of the organ and the work which it can do. Two general groups of methods are utilized to restore equilibrium: (1) methods which decrease the work required of the organ, (2) methods which stimulate the power of the organ to do work. We have long recognized that drugs cannot qualitatively change function, but can only increase or decrease function; the same thing is true of other forms of treatment; under their influence, function may be increased or decreased but not qualitatively changed. A knowledge of therapeutics, especially the therapeutics of chronic disease, consists largely of a knowledge of (1) methods of stimulating organs or functions, (2) methods of resting organs or functions, (3) knowledge of when and how to apply such methods. Though the diseased organ may never become normal as the result of treatment, it may, nevertheless, be made functionally efficient, that is, competent to its tasks.

Every opportunity is given the student to observe methods of treating acute disease, but since,—as the considerations which follow will, I think, show,—training in the treatment of chronic disease is the only training that can lay the foundation for a rational knowledge of therapeutics, stress is laid particularly on the principles of treatment of chronic disease. The details of treatment in chronic disease depend on the *severity* of the disease, on the *degree* to which functional efficiency is impaired. Since we have made scarcely a beginning in our methods for the exact measurement of functional efficiency, all estimates of the severity of the impairment of function and of the degree of change, either for better or worse, in the severity

of the disease depend on the judgment of the physician. Judgment concerning the degree of disturbance of a function like circulation, for example, depends on estimates of the severity of the dyspnea, cyanosis, weakness on exertion, and other more subtle changes, none of them capable of very exact measurement, and a comparison of these changes with those seen in many other cases. To this kind of judgment must be added, as the basis for the treatment of each new case, experimental observation of the effect of treatment in influencing the severity of the disease. Such knowledge and judgment is acquired only as the result of long experience combined with proper training and some natural ability and aptitude for this kind of work. In other words, in contrast with the standardized, simple, exact, and easily learned treatment of acute disease, the treatment of chronic disease requires long clinical experience, good training, and special talent in observation and comparison. In acute disease, furthermore, but a small proportion of the population suffers at any one time, and the illness lasts but a short time,—in the course of a few weeks the patient is either well or dead: the most important feature of the treatment belongs to the field of preventive medicine. With chronic disease the case is quite different. A large proportion of persons who have reached middle life suffer from some weakness of function, some handicap based on a physical defect,—in its widest sense, some form of chronic disease,—this is not over in a few weeks; the patients may live a long time and must adjust themselves to their handicapped condition. In such cases it is the province of the physician to help them adjust themselves; the length of time they live, their general efficiency and comfort depend very largely on treatment; almost everything, in fact, depends on the physician. Furthermore, in the treatment of chronic disease, a broader view of all the circumstances of the case must be taken than in the treatment of acute disease; facts concerning the nature of the patient's occupation and the state of his family and financial affairs must be taken into consideration. In acute disease these factors enter very little; for the few days during which they are sick, no matter what may be their family or financial responsibilities, all patients with such diseases as pneumonia or typhoid fever usually succeed in having the same excellent treatment carried out.

Great emphasis is laid on the hopefulness gained by this point of view, that in chronic disease, the aim of treatment is improvement in function. Not only students, but also eminent practitioners as well, often show a lamentable tendency to direct all their attention to the anatomical basis of the disturbance to the exclusion of treatment; their whole aim seems to be only to determine as accurately as possible the exact anatomical nature of the lesion present, and, partly because of considering nothing but the anatomical-structural changes, and, realizing

the difficulty, if not impossibility, of influencing these changes, they have shown a tendency to skepticism in their attitude toward the treatment of chronic disease. Another mistake associated with this one is the tendency, not only of the laity but also of many well trained physicians, to consider the so-called "chronic and incurable diseases," as conditions having an inherent downward tendency, and, from the standpoint of therapeutics, hopeless. This point of view is a wrong one; most chronic diseases do not have an inherent downward tendency; they result in a weakness of function and, if the functional activity of the patient is adapted to his functional capacity, the *status quo* may often be maintained. It is a mistake to associate the words "chronic" and "incurable," as they often are, together. The dictionaries (Century, Webster) define "incurable" as "beyond the power or skill of medicine," and give "hopeless" as a synonym. If this definition is correct, we should reserve the term "incurable" for such diseases as the acute infectious diseases, not susceptible of specific treatment, whose course it is "beyond the power or skill of medicine" to directly influence, and not use these expressions with reference to such conditions as heart disease, Bright's disease, diabetes, and many other chronic diseases, the anatomical changes of which we are, indeed, unable to influence, but whose course is most decidedly amenable to treatment, often, indeed, very largely determined by it. The term "incurable" implies that the physician is powerless in the face of the condition. Since the physician is often unable to directly influence their course, we may, therefore, properly use this term with reference to many of the acute infectious diseases, but not with reference to most chronic diseases, for in such conditions he is far from powerless. A wrong point of view regarding the purpose of treatment is responsible for both of these mistakes. To counteract this attitude toward disease, great emphasis is laid on the correct point of view, namely, that in the treatment of chronic disease we try to influence not so much structure as function. A patient whose leg had been amputated would not be sent away with the statement that, since it is impossible for him to grow a new leg, nothing can be done for him; by the use of an artificial leg such a patient can be made nearly as efficient as a normal man. The same attitude should be taken toward patients with incurable lesions of internal organs; these patients, too, can often be made functionally efficient. In examining patients, attention is directed chiefly to the nature and degree of the disturbance of function; in heart disease, for example, it is emphasized that we do not treat murmurs, that in some of the worst cases of cardiac decompensation murmurs are absent, and that, therefore, it is a mistake to pay more attention to murmurs than to the degree of circulatory decompensation as evidenced by the history of the patient. A correct point of view in this respect is of the greatest importance

since it makes for a very great gain in hopefulness.

Since it is only through feeling confident of obtaining good results that the physician,—in the face, often, of great difficulties,—can carry out his treatment with enthusiasm, I believe that it is very important to strongly impress students early in their medical career with an optimistic and hopeful attitude toward the results of treatment. That chronic disease is amenable to treatment and has a hopeful outlook is capable of demonstration, and is one of the things we try to show students. Our optimism regarding the effect of treatment at the hospital where the instruction is given (The Robert Bent Brigham Hospital) is probably much influenced by the fact that we see the results of treatment *with the treatment properly carried out*; the less optimistic point of view of many physicians is often due to the poor results of treatment but to discouragement at the *difficulties of having treatment intelligently carried out* in private practice; and this distinction we try to bring home to the student. The object of the course is, then, not alone to show how to treat sick patients, but also to demonstrate how much treatment can do, especially for patients with chronic disease.

On account of the fact that it is usually not the anatomical lesion which we treat, but the disturbance of function, and that, in diagnosis, so much attention is devoted to the nature and degree of this disturbance of function, we try, as far as possible, to base our therapeutics on a rational knowledge of the functions of the various organs and methods of influencing these functions, and, therefore, discuss very thoroughly the pathological physiology of the various diseases and our methods of measuring functional activity. Active scientific investigation is going on at the hospital where the instruction is given, and the students are introduced to the problems of scientific investigation so far as these problems relate to treatment. It is pointed out that, whereas the most important practical objects of research in acute medicine are the development of methods of exact diagnosis, the discovery of direct, specific methods of treatment, and the development and establishment of schemes of preventive medicine; in chronic medicine, on the other hand, one of the most important objects of research concerns itself with the development of methods of more exact measurement of functional efficiency, in order that the results of treatment may be more quickly and accurately gauged,—methods that may replace or supplement the less exact guesses of the clinician,—guesses in which the personal equation enters to such a large extent. Notable success in the measurement of functional efficiency has been reached in the case of diabetes; improvement in function,—and, therefore, the effectiveness of treatment in diabetes,—is quickly and accurately determined by measurement of the power of the body to metabolize carbohydrate. A good start

has already been made in kidney disease; the physician is no longer satisfied with the knowledge that the urine contains granular casts, blood cells, and albumin,—as a matter of fact, in some of the worst cases of chronic nephritis it may be nearly impossible to demonstrate either albumin or casts, and mild cases of nephritis may show much albumin in the urine,—but measured amounts of water, sodium chloride, and dyestuffs are administered, and the amount excreted in a definite time compared with the normal as a measure of the efficiency of the glomeruli and of the tubules in excreting waste products. Possibly the recent studies of the relation of purin metabolism to gout may fulfill a similar function for this disease. At present more attention is being directed to the question of the accurate measurement of functional efficiency, and on account of its bearing on therapeutics this phase of research is emphasized to the students.

The facilities for teaching are excellent. The course is given in a large modern hospital of about 150 beds, well equipped for diagnosis, treatment, pathological studies, and scientific laboratory investigation and with abundant and varied clinical material. While the hospital is one for chronic disease, nevertheless, as a result of intercurrent infection, acute exacerbation, or other reason, many patients with acute conditions come under observation, so that all the common acute diseases such as pneumonia, typhoid fever, the acute stages of rheumatism, appendicitis, gall-stones, gastric ulcer, and tonsillitis are seen during the course of the year. Among chronic diseases, the variety is very great; cases of all the common, and many of the uncommon, diseases of the heart, kidneys, vessels, blood, lungs, joints, bones, nervous system, skin, gastro-intestinal tract and general metabolism are seen at all times. Not only medical methods of treatment, but also, by coöperation of members of the staff, surgical, orthopedic, and other special forms of treatment are demonstrated. Much attention is devoted to the so-called imponderable remedies,—massage, exercise, hydrotherapy, posture, and diet, and the students have an opportunity of observing these methods carried out under the direction of experts.

In the discussion of treatment the plan is to take up first the treatment of diseases of the heart, then, in succession diseases of the kidneys, the vessels, diseases of respiration, the blood, the gastro-intestinal tract, and last, diseases of metabolism. This seems a rational order of discussion: the heart has but one function, that of maintaining the circulation, and, in the treatment of heart disease, there is but one function to be influenced; though the details of treatment may be modified by the nature of the lesion, the general principles of treatment are practically the same, whether the endocardium or the myocardium is the seat of disease, whether the lesion is one of the mitral or of the aortic valve, that is to say, the exact nature of the anatomical

lesion is of far less significance, so far as treatment is concerned, than the question of the severity of the disturbance of function, as evidenced by the amount of venous congestion, edema, dyspnea, or other symptoms of impaired circulation. In the treatment of diseases of the gastro-intestinal tract a new complication is introduced: the gastro-intestinal tract is made up of a number of distinct organs, and each of these organs has several distinct functions; the same general principles,—stimulation of function, and rest of function,—are used, and the degree of disturbance of function is of the utmost importance, but we must first recognize which part of the gastro-intestinal tract is diseased, and which particular function,—motor, digestive or absorptive,—is disturbed before applying treatment. Diseases of the kidney occupy a position intermediate between diseases of the heart and diseases of the intestine. At the present time the treatment can be discussed with the same degree of simplicity as that of heart disease; it depends chiefly on the severity of the disease, on the extent to which waste products are accumulating in the body. There is, however, some difference in function between the glomeruli and the tubules, and a case is occasionally found in which it is chiefly the tubules or chiefly the glomeruli which are imperfectly functioning; in other words, a case in which the exact distribution of the lesion is significant for treatment. In diseases of the general metabolism the disturbance of function often cannot be related to any particular organ, sometimes, perhaps, simply because we do not know which organ is diseased; in other cases, perhaps, because the cells of the body as a whole are involved. In discussing diseases of the different organs, the functions of the organs are very briefly reviewed and then are taken up, in turn, the nature of the disturbances of function which pathological changes in the organ can lead to, methods of influencing these disturbances of function, and, finally, the clinical forms of disease of the organ; the facts are then illustrated by demonstration of patients in the wards.

Instruction is given to small sections of both third and fourth year students. Each exercise lasts one hour; the first half hour is devoted usually to a talk on the general principles of treating diseases of some one organ, the last half hour to an exhibition of patients under treatment. The work would be better carried out, I believe, by having the students first read up methods of treatment on the outside and then having the important features impressed upon them and the methods of treatment illustrated by bedside quizzes; but there is at present neither a text-book nor a syllabus that treats the subject in a suitable manner, and, furthermore, the extensive use of the quiz method of instruction in the subject would mean slower progress in covering the ground than the time at present allotted to the course warrants. New forms of disease are successively taken up and new pa-

tients shown, but the patients already seen are followed from day to day to show the effect of treatment and the necessity for changes in treatment. Emphasis is laid throughout on the *general principles* of treatment; and it is pointed out that whereas the details of treatment,—the particular drug used, the size of the dose, and often even more important features,—may differ with different physicians, yet the general principles of treatment are essentially the same with different physicians, and one physician can, as I do, use the treatment charts of other physicians as good examples of methods of treatment. Many of the patients are seen again by the student under colleagues giving other courses at the school, so that the student is able to complete his picture of the cases by other points of view.

THE WORKMEN'S COMPENSATION ACT AND THE PHYSICIAN.

By HERBERT J. CRONIN, M.D., CAMBRIDGE, MASS.

THAT the medical fees in workmen's compensation cases must be reasonable and should be based on an industrial basis rather than what the traffic can bear; that efficiency of physicians in returning their patients to work at the earliest possible time is now demanded; that adequate treatment be urged for the employees who may be treated in public hospitals; and that the possibilities of state socialism in respect to medicine can be avoided only by the proper co-operation of the physicians with the insurance companies, are some of the points of interest in a consideration of the present problems in relation to the workmen's compensation act in Massachusetts.

"The policy of the Industrial Accident Board is to treat the medical fraternity as a profession," says Dr. Francis D. Donoghue, medical advisor to the Board. "We are straining every effort to make this law what its framers intended it to be. There are constant problems arising which the Board is called upon to interpret; but that is to be expected of all new legislation. So far the law has been an entire success and we hope to see its provisions extended to take in all classes of employees and the benefits larger for all concerned. A clear understanding of the law by physicians will be a great help in avoiding misunderstandings."

The question of fees is still the most important point to the practicing physician. There is no standard schedule of fees. The law in this respect states:—

"During the first two weeks after the injury, and, if the employee is not immediately incapacitated thereby from earning full wages, then from the time of such incapacity, and in unusual cases, in the discretion of the Board, for a longer period, the association shall furnish *reasonable*

medical and hospital services, and medicines when they are needed."

The Board in interpreting the word "reasonable" medical service feel that the charges should be levied on an industrial basis. The charge should be no more than if the injured working-man came to the physician for personal advice and treatment and the bill was not to be paid by the insurance company. In this respect, the insurance companies have complained bitterly that some physicians deliberately pad their bills and make unnecessary visits in compensation cases. They cite instances where a physician makes three calls a day for fourteen days, at \$5.00 a visit, for such trivial injuries as a crushed finger tip!

The Industrial Accident Board have the supervision of the fees under the law:—

"Fees of . . . physicians . . . shall be subject to the approval of the . . . Board. If the association and any physician . . . fail to reach an agreement as to the amount to be paid for such services . . . the board . . . may . . . call for the formation of a committee of arbitration. . . ."

Of course in such cases the company must show reason why the bill is contested and evidence given if it is claimed that the bill is padded.

The guide-posts by which the Board determine the amount of fee a doctor is entitled to are:—

1. The locality in which he practices; for the man in the mountains of Western Massachusetts does not receive nor expect to receive what the metropolitan doctor does.
2. The nature of the injury.
3. The standing of the practitioner in his profession.

In common practice, the following fees may be given as an example of what is generally accepted by the insurance companies without protest:—

Office calls	\$1.00
Office calls with an important dressing	\$1.50
House calls of any sort	\$2.00

If there is a large dressing, such as a severe burn, \$2.50 is allowed for a house call.

Numerous questions arise in relation to house calls. For instance, if a man, injured in Cambridge lived in Dorchester, wished the Cambridge doctor who gave him first aid to continue to treat him at his home, can that doctor charge the extra fee ordinarily asked for going that distance? The Board, in such cases, will not allow more than the \$2.00 fee because it feels that there are just as competent men in Dorchester who will treat that man for \$2.00, and if he demands his own physician, he must himself pay the expenses of the visit about \$2.00.

Then there is the question of more than one visit a day. The companies usually refer these cases to the Board for approval unless the case is one of obvious merit.

House calls for an injured upper extremity

are looked upon as worthy of investigation; for it is felt that so long as the man can walk he could go to the office of the doctor and keep down the expense.

Daily dressings of clean sutured wounds are not only disapproved by the best medical practices, but the advisors of insurance companies realize that they are unnecessary and refer them to the Board for approval.

Many other points arise, but the doctor who will live within the spirit of the act, and make his charges fair for the type case he treats, will have no trouble. There are no bad debts in insurance cases. One is always sure of an early payment, and as these cases are constantly occurring he will have other chances of gaining revenue.

The doctor in this state gets a higher return for service than in any other state in the Union where a similar act is in force.

The fees in first aid treatment are about as follows:—

The thorough cleansing of a wound filled with grease and dirt, that takes much time and skill, is allowed from \$3 to \$6, according to the severity of the wound and the after-results with regard to sepsis. The strapping of a fractured rib is granted from \$3 to \$5. Small clean sutures and the incision and drainage of small septic areas are allowed from \$3 to \$5. The fee for an etherizer is from \$3 to \$5 according to the length of the operation. With operations themselves, the fee question is a constant source of controversy. At one time it was recommended to the Board that \$50 should be the maximum for any operation. This is a fair fee for such cases as it is a well known fact among physicians that \$50 is gratefully received for most major operations among the working classes, who choose a private surgeon rather than go to a public hospital. In the smaller operations, such as the amputation of a finger or toe, the fee is from \$5 to \$10, while the reduction and first dressing of a Colles fracture is from \$10 to \$15.

To some it seems that this problem could be best served by a fee table. The insurance companies would welcome a standard set of prices. Yet this would mean that all men, no matter what their qualifications were, would be classed alike under the law. If instituted, it would take away the present elasticity of the act and not allow the fullest possibilities of adequate treatment in cases where the best was needed, regardless of the cost.

When the Workmen's Compensation Act was originally drafted, the Legislature created the Massachusetts Employees Insurance Association, which was to be a mutual company composed entirely of employers with a monopoly of the workmen's compensation business in this state. But amendments were added which allowed all insurance companies to write compensation under the act in competition with the State Association. This competition has produced a healthy

condition in the interpretation of the act, because if the State company were supreme they could not only force a fee table of their own making on the medical profession, but could open their own hospitals and demand that the employees go to them or be refused compensation. Thus the work would be concentrated in a few hands, to the detriment of the profession at large. Most of the companies today are perfectly willing that the employee shall choose his own attendant if that physician is willing to limit his charges to those considered reasonable. In a recent amendment of the law this is considered:—

"Where, in case of emergency, or for other justifiable cause, a physician other than the one provided by the association is called to treat the injured employee, the reasonable cost of his services shall be paid by the association, subject to the approval of the Industrial Accident Board. Such approval shall be granted only if the Board finds that there was such justifiable cause and that the charge for the services is reasonable."

This clause has justly given the Board the needed power of discretion in cases where the insurance company has attempted to force its physician on an employee who has good reasons why he wants to choose his own.

The contract system, used by some of the companies, is to be deplored. It is natural that the company will try to employ a physician as reasonable as possible and may not always choose the most efficient one. Cases are treated on a wholesale basis, and as the individual fee is so small, the physicians cannot afford to spend but a limited amount of time on a case. This also is not the spirit of the act, which demands the best possible treatment at reasonable prices.

Then again the contract doctor comes immediately into competition with the regular family doctor; for after the injured employee gets acquainted with the contract doctor, he is liable to continue to call on him for other family troubles. Even in ordinary illnesses, the employees themselves are tempted to have the company doctor because they feel that it will probably help them with their employer if there is a question of losing their position.

As it is now, the family physician is being well paid for his services, and the money that was formerly taken out of that family for injuries, now remains and the physician has a better opportunity of being paid if he attends the wife or children.

When the act first went into effect, the insurance companies were distrustful of the doctors. But today this attitude has given way to a more enlightened one. The companies find that the doctors were willing to cooperate and, with the Industrial Accident Board acting as an intermediary of the highest judicial ability, it seems that all future problems can be easily handled with the best interests to all concerned.

Today the companies demand that a man shall

be efficient in his treatment of these cases. A doctor should try to get the patient back to work in the shortest possible time. A man may break his leg and the bone be firmly united in eight weeks, but because of muscle stiffness and atrophy, he will continue to limp around and refuse to go back to work. This man may not be a malingering, even in spirit, but he feels that it is necessary for his best recovery to stay away from work until the leg feels as good as before the accident. He is getting his weekly compensation and thinks the company is rich and well able to pay him his dues. If a doctor in such a case will apply the well known methods of active and passive motion with massage and baking, as well as the proper mental encouragement, he can get the man back to his work in a much quicker time. As the law now stands, deliberate attempts at malingering can be partly avoided by this part of the Act:—

"After an employee has received an injury, and from time to time thereafter during the continuance of his disability he shall, if so requested by the association. . . submit himself to an examination by a physician. . . furnished and paid for by the association. If he refuses to submit himself for the examination, or in any other way obstructs the same, his right to compensation shall be suspended and his compensation during the period of suspension may be forfeited."

The practicing physician is now able to compete with the out-patient departments of the various public hospitals which are charging \$1.00 a visit at wholesale rates. He can give the individual care which is so necessary in these cases if they are to return to work quickly. Visit the out-patient department of the Boston City Hospital any morning and see the treatment given to the industrial cases there! A line of men, daily averaging about 150, are crowded together in a small room, examined hastily by an externe, and passed on to the dressing room, where the treatment is applied by a student or attendant, whose main idea is to slap on bandages, get the patients out and have them return as few times as possible. Septic cases are herded together with clean wounds, and the student dresser goes from one to another. Is it any wonder that the clean cases go septic and then twice the time is necessary for their recovery? The same conditions prevail at the Haymarket Square Relief Hospital. Ninety per cent. of the traumatic surgery that comes into this hospital is treated by students who have no interest in the case and will never see it again. Their aim is to get the cases fixed up as quickly as possible and then refer them to the Main Hospital (City Hospital) for their after-treatment. Every case is first seen by a house officer, and if he considers it serious, or it happens to be a railroad accident case, which means a court fee to the resident surgeon, then the house officer will show the case to the resident surgeon, who will give him advice as to the treatment. I have

seen an injury as serious as a punctured wound of the knee joint in a child treated, with the knowledge of the resident surgeon, by a third-year medical student!

There is springing up at present a type of so-called emergency hospitals, which are masquerading under the guise of charitable institutions, but really are preying on industrial cases. Here again it is wholesale treatment with not the best interests of the patient at heart. Such hospitals should not get the same compensation as the family doctor and efforts should be made to discourage their growth.

The records of physicians and hospitals are notoriously poor in the industrial cases. There should be a complete record kept and especial note made on the the end-result of the injury for reference to by the Board and especially in court proceedings.

The question of charges for board and room in hospitals along with special treatments of various sorts, such as x-rays, etc., has been solved for the present as follows, according to the Board's Annual Report:—

"The Industrial Accident Board approves the following fees by hospitals:—

1. The fee for hospital care in all cases shall not be more than \$15 a week, in addition to the following extras:—
2. Operating room fee, \$5.
3. X-ray, \$5 for each examination, without regard to the number of plates made, except for examinations of the head, trunk or hips, when a charge not to exceed \$10 may be made.
4. Serums, special drugs and special appliances may be charged for at cost.
5. When it becomes necessary to engage a special nurse for more than three days, the insurer should be notified, and have the right to bring the matter to the attention of the Industrial Accident Board for investigation as to the necessity for the engagement of the nurse and the extent of nursing required. The maximum charge per day for such special nursing shall not exceed \$4.
6. The board will approve a charge, not to exceed \$3, for ambulance calls within a radius of three miles, and \$1 for each additional mile, the charge to be made only in one direction.
7. The fee for out-patients shall not exceed \$1 for each visit.
8. When a surgeon is employed to care for an injured person and such person is admitted to the hospital, or when the custom or rule of the hospital provides that a patient shall pay the surgeon's fee, the Board will approve of the payment of a reasonable fee to the surgeon, in addition to hospital charges."

The question of x-rays has been much abused. It is felt that the x-ray should be taken only in case of doubt and then that the fee be allowed only to an expert. The promiscuous taking of pictures by general practitioners with a poor machine, which results in a plate of little or no

use, does not come within the meaning of this ruling.

There is now a feeling that the staff of no hospital should be allowed to charge a fee for the care of industrial cases. Such doctors would then probably make a more concerted effort to get these cases out of the wards if there were no daily income for them while they remained there. The corraling of cases by the staffs of some of the public hospitals and making private patients out of them, is much to be deplored and should not be countenanced.

There is no question that the proper application of the Workmen's Compensation Act will prevent any relapse into state socialism for the medical profession, such as is now in force in England and Germany.

REFERENCE.

First Annual Report of the Massachusetts Industrial Board, Workmen's Compensation Act.
Bulletins 1 to 11, Industrial Accident Board.

A METHOD OF TESTING GASTRIC SECRETION BY THE USE OF A SELF-CLOSING DREDGE.

BY ALEX. M. BURGESS, M.D., PROVIDENCE, R. I.

Of the many attempts which have heretofore been made to find a method of obtaining a sample of gastric contents without the use of a stomach tube, none has been absolutely successful. The failures are due chiefly to the fact that contamination with esophageal and pharyngeal mucus has been found unavoidable. Among such attempts may be mentioned the use of a small sponge on a thread, the Einhorn bucket, and the thread test. A method recently suggested by Rehfuess of Philadelphia, which involves the use of a steel capsule containing capillary tubes filled with agar is, however, not open to this above-mentioned objection. In this instance the gastric juice enters the capsule by several small perforations, and alters the color of the indicator which is contained in the tubes of agar. On removal, the action of esophageal and pharyngeal mucus is practically negligible and can affect only the extreme ends of the agar tubes. Thus the question of the presence of acid in the gastric secretion is answered, although no actual sample of the secretion is obtained.

During the summer of 1915, while working in the Ewald Clinic at the Augusta Hospital in Berlin, there occurred to the writer the fundamental ideas on which the following method is based.

This method consists of the use of a capsule, which is so constructed that it automatically closes as it leaves the stomach, and thus protects its contents from contamination. This automatic closure, the essential feature of the capsule, is made possible by the fact that the

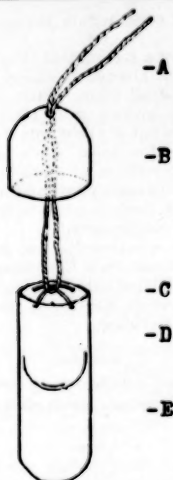


FIG. 1.

Diagram of Dredge Threaded with Silk, and with Parts Separated.
 A—Silk thread.
 B—Glass cover of dredge.
 C—Crossed platinum wires, with thread passing beneath them.
 D—Hollow part of lower portion of dredge.
 E—Solid glass.

cover (see diagram, Fig. 1) is perforated by a small hole, through which passes the silk thread to which is attached the lower part of the capsule. Thus the cover is free to move upon the thread. When the dredge, as the capsule may appropriately be called, in being removed from the stomach, reaches the cardia, the cover is forced down upon the lower portion, and it is thus effectively closed and may be drawn up through the esophagus without any chance of contamination of its contents. The cover should not fit the lower portion tightly, but should be about 1 to 0.5 mm. greater in diameter than the outside diameter of the latter. This allows the cover to slip down easily over the lower portion when it meets resistance from above.

As important as the effective closure of the dredge on leaving the stomach, is the effective opening and filling after it is introduced. This is accomplished by placing it in an ordinary gelatin capsule which fits closely around it, and allows it to be swallowed while open, the parts being held separate within the inclosing capsule, and as soon as the gelatin is dissolved in the stomach, the dredge readily fills with fluid. At body temperature the gelatin dissolves sufficiently to allow the dredge to fill in from one to five minutes, but fifteen or twenty minutes should be added to allow for further solution of the gelatin so that there may be no interference with the closure of the dredge in its removal.

The problem of weighting the dredge so that it may be readily swallowed, and so that it will sink in water, is solved by having half of the

lower portion made of solid glass. Mr. A. W. Claffin, of George L. Claffin and Company, Providence, has been successful in devising and producing this dredge for me. A detailed description of it follows:—



FIG. 2.

Dredge closed.

The dredge consists of two parts, a lower portion and a cover. The lower portion is cylindrical (see Fig. 1) with rounding base, and one-half of it is solid glass. The walls of the upper cup-shaped half of the lower portion are 0.5 to 0.75 mm. in thickness. The opening at the top is spanned by two pieces of No. 28 platinum wire, crossed at right angles, and with their ends securely embedded in the glass. These wires are slightly curved and are set with the convexity of their curves upward. The upper portion, or cover of the dredge is dome-shaped, and half as long as the lower portion. It is perforated at the top centre by a minute hole, sufficiently large to allow it to slide back and forth on two strands of No. 9 surgical silk, which pass through it. This hole is carefully fire-polished so as to leave no cutting edge. The inside diameter of the cover is 0.5 to 1 mm. greater than the outside diameter of the lower portion, so that it may fit down easily over the latter. All edges are carefully fire-polished.

Four sizes have been used; their measurements as follows:—

	1	2	3	4
	mm.	mm.	mm.	mm.
Length of lower portion in mm.	10	13	17	20
Length of cover in mm.	5	6	8	10
Outside diameter of lower portion	4	5	7	8

NOTE.—Gelatin capsules which have been used with these dredges are No. 2, No. 1, No. 00. No. 000.—Ell Lilly and Company.

Method of using the dredge:—

The dredge should first be threaded with No. 9 surgical silk, by passing the silk first through the perforation in the cover from above, then beneath

the crossed platinum wires of the lower portion, and back through the hole in the cover from beneath. The silk should be drawn through and cut so that the dredge is strung upon a double thread of about 70 centimeters in length. The cut ends are tied together. The dredge is then fitted into the proper sized gelatin capsule in such a way that the two parts are held separate within the closed gelatin covering. They may be made to adhere to their respective gelatin coverings by the use of 50% alcohol, although in actual use this procedure has appeared to be superfluous.

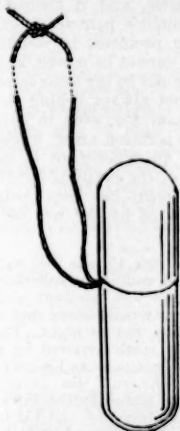


FIG. 3.

Dredge within gelatin capsule ready to be swallowed.

Immediately before being swallowed, first the thread and then the gelatin covering of the dredge should be moistened with cold water. A little water may be taken to aid in swallowing the dredge. When it has been swallowed and has drawn down almost all of the silk thread, the remaining loop with the knot may conveniently be held beneath the upper lip, or the knot may be slipped between two teeth. There is no discomfort from the presence of the thread while the dredge is in the stomach.

In removing the dredge, gentle and steady traction is made on the thread until the dredge sticks at the level of the cricoid cartilage. A little water may then be taken in the mouth and the dredge removed without difficulty at the moment the water is being swallowed. If several repeated tests are to be made following a single test meal, it is, of course, necessary to swallow and remove the dredge without the taking of water, and this can ordinarily be done without difficulty.

By the use of the dredge an adequate qualitative examination of the gastric contents is possible without the discomfort to the patient which attends the passage of the stomach tube. With the two smaller sizes it is convenient to use a bit of congo red paper in the dredge to indicate the presence of hydrochloric acid, and to transfer a little of the fluid to a slide with a capillary pipette for microscopical examination. The

capacity of the two larger sizes is such that 0.1 c.c. or more of gastric contents is obtained, and with care an accurate titration of the acidity can be made. For this purpose it is convenient to use N/200 NaOH solution in an ordinary burette. By the use of the larger dredges it is possible to carry out, if desired, a study of the variations of acidity in the course of gastric digestion, as is done by Rehfuess and his associates, using his modification of the Einhorn duodenal tube. To the practising physician, however, the dredge will prove most useful in those cases in which he feels the need of a simple examination of gastric contents, but does not feel justified in putting his patient through the ordeal which is often involved in even the most skilfully performed passage of a stomach tube.

Clinical Department.

SUNSHINE: ITS NEGLECTED ANALGESIC-SEDATIVE ACTION.

By JOHN BRYANT, M.D., BOSTON.

THE healing power of the sun has been known, one might almost say, for countless ages, and it is common knowledge that it makes one "feel good" to go off on a vacation and get one's skin tanned a mahogany color by the sun, even at the expense of a few blisters. Modern scientific application of this knowledge is, however, curiously limited. Solaria are numerous enough, but there is little attempt to get direct application of the sun to the skin, except in the case of the artificial Finnsen light for lupus, or more recently in the case of bone and joint tuberculosis, as at Laysin by Rollier.

Since Rollier is one of the foremost, as also one of the most successful, exponents of the virtues of heliotherapy, it may be worth while to inquire what of his methods are available elsewhere. It was the author's privilege to leave Lausanne early one perfect May morning, and after following the border of the Lake of Geneva, to mount rapidly to the three to four thousand foot elevation of Laysin. The first impression is of the extreme beauty of the location, having as it does the snow-capped Alps and Mont Blanc, for its keynote. The second impression one receives, on walking through the village, is of the superlative health and positive optimism of the sick people to be seen on every house balcony.*

Next, one notices the architectural arrangements of the buildings of Rollier's clinic, imposed by the necessity of securing privacy for individual patients during insolation. Arrived

* At this time there were 1300 tubercular patients in the town, and for want of more beds there was a waiting list covering all Europe. Austrians were in greatest number, and the list was long enough so that an applicant was fortunate if he arrived after six months' of endeavor.



FIG. 1.—Rollier's Sanatorium, Leysin. Showing open-air cubicles for private or adult cases. The open roof is used for ward children.

at the clinic; it was impossible to avoid asking the exceedingly capable head nurse what food it was that made possible the universal ruddy cheeks and smiles and cheerfulness of the patients. She replied that neither children nor adults were stuffed. Her recipe seemed to be plenty of sunshine inside and out, and plain wholesome food and not too much of it. Faith

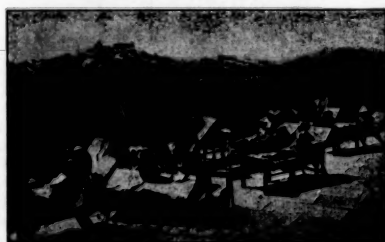


FIG. 2.—Children's Ward, Leysin. Showing open-air treatment in summer.



FIG. 3.—Leysin. Sun cure in winter by Dr. Rollier's method. Clothing consists of hat, short tights, and shoes. This costume is possible owing to the extreme dryness of the snow and air at the considerable elevation of the clinic.

in the future must be an important element in the condition of universal mental bliss to be found here, for it seems practically certain that, even though the time may be two or three years, the invalid may look forward to discarding props and crutches, and to returning home cured.

The technic of insolation has been fully described by Rollier and others, and it is only necessary to say that the sun is very powerful, and that it is capable of producing harm as well as benefit when not properly controlled. Of chief importance for immediate consideration is the fact that during the process of insolation, pain ceases, and nervous irritability decreases or disappears.

It is obvious that tuberculosis is not the only disease marked by pain and hyper-irritability of the nervous system, and it seemed reasonable that some of Rollier's principles could well be applied to other problems in medicine. True, his stage-setting cannot be moved, and the elevation and air may not be the same in other places, but the sun is not always behind the clouds or hidden in smoke or fog, even in New England. Therefore, when occasion arose, it seemed highly desirable to try an experiment in home insolation,—for want of the hospital facilities at Leysin. The experiment has been justified by its results, as suggested by the two following case histories:—

CASE 1. Mr. G., age 45, was first seen when in a practically hopeless condition, suffering from atrophic arthritis. Pain was incessant, and it was impossible for him to remain more than fifteen minutes in any position, day or night. Pain and restlessness were only partly relieved by a change in diet and other medication. As his bedroom window faced south and the sun was imitating that of Egypt, his bed was placed by the window with due precaution against draughts, and his body was increasingly exposed to the sun, devoid of all clothing. By the time he could remain for an hour or two in the sun, the change was astonishing. He remained quiet, dozing, contented, apparently free from pain and no longer begging to be turned, during the whole of his sun baths. A decided improvement was shown during the remainder of the day and night interval, but during the exposures complete comfort seemed to be attained. Though insolation did not alter the final result, the increased comfort attained was apparently appreciated, not only by the sufferer, but by the others most nearly concerned.

CASE 2. Mrs. F., aged 38, was referred for treatment of extreme emaciation and visceroptosis. When first seen, although the height was 5 feet 7 inches, the weight was 87 pounds, the upper arm apparently being only slightly larger than the wrist. Nervous irritability was extreme, the patient stating that every nerve in her body was jumping all the time. She was, in short, an example of the state to which injudicious treatment can bring the feminine carnivore of extreme type. Diet and other measures rapidly added fifteen pounds to her weight, with corresponding improvement in general condition and in "the nerves." But as in the first case, the measure from which the greatest relief was obtained, was the sun bath. When the exposure had reached an hour a day for the whole body, the "nerves" practically disappeared, to return at once as soon as for sufficient reasons it was impossible to give the time to continuing the sun baths. At present the patient remains in a satisfactory condition, despite severe drains upon her strength and

powers of resistance, and she is confident that further progress will be uninterrupted as soon as arrangements can be made for continuing the insolation.

These two cases prove sufficiently the possibility of bringing the beneficent action of sunshine to the individual, where it is not possible to provide efficient hospital facilities for insolation. Such hospital facilities do not, so far as the author knows, exist in this vicinity. This applies not only to the tubercular, but to the many other cases suffering from chronic pain, especially in the bones or joints, or from nervous hyper-irritability, or both.

Sunshine, when properly used, has both a powerful analgesic and a sedative action. It is to be hoped that if hospitals or sanatoria cannot be equipped for giving patients adequate insolation, advantage may at least be taken of the value of carrying out this efficacious form of treatment at the home of the individual sufferer. In a word, sunshine is a simple, cheap, and efficient analgesic-sedative, of which more extensive use can be made with correspondingly gratifying results.

NEUROMA OF ULNAR NERVE: ANALYSIS OF A CASE.

BY JAMES B. AYER, M.D., BOSTON,

Assistant in Neurology and Neuropathology, Harvard Medical School; Assistant Neurologist, Massachusetts General Hospital.

THE following case is worthy of publication, on account of its manifold teachings and interest to neurologist, surgeon, pathologist, and physiologist. A cut across the elbow, insignificant at the time even to the eye of an expert, leads later to complete ulnar paralysis, the formation of a painful tumor, and three operations, with serious residual palsy after six years.

Without further introduction, let us read the case in summary (italics being used to accentuate matters considered of importance in the general understanding of the case).

R. W., in May, 1909, when thirty-four years of age, accidentally cut her left arm just above the elbow with a knife; the wound was sutured and *healed in two weeks*. A few weeks later, July 27, 1909, on account of a feeling of numbness in her little finger she was seen by the visiting neurologist at the Massachusetts General Hospital, who found motion and sensation present in the ulnar nerve distribution and makes note "*apparently no nerve involvement*." When the patient returned next on Oct. 21, 1909, anesthesia, pain, weakness, R.D., all referable to the ulnar nerve, were unmistakable, and operation was advised.

On Jan. 8, 1910 (eight months after the injury) operation was performed: "Old scar at elbow excised—ulnar nerve located and found largely cut across, cut ends freshened and approximated with int. silk. *Nerve apparently imbedded in scar tissue which was not disturbed.*"

The patient after leaving the hospital did not return for four years. On Feb. 17, 1914, she was seen by the writer and gave the following story: *No improvement had followed the operation; she still has pain and tingling over ulnar distribution, and has also had for two years a small painful mass in the scar of the old operation, and thinks it is growing larger.* Neurological findings: "Anesthesia in ulnar distribution, left hand. Pain in same region. Loss of ulnar power in hand, wasting of interossei. R.D. of ulnar muscles. Mass in scar." (W. E. Paul.) Surgical interference was advised, and on Feb. 19, 1914, Dr. C. A. Porter performed the following operation:—

"Five-inch incision, *excising old scar.* Ulnar freed. A nerve bulb, size of end of finger, found on proximal end of nerve. This was connected by a few shreds of tissue—two to three mm. in diameter with the distal ulnar. This thinned portion of the nerve was about one inch in extent. Bulb and thread-like portion excised and slight tension was made upon proximal end. Nerve united by two chromic No. 00 catgut sutures, put up with arm extended. Cargyle membrane about suture. Fat over

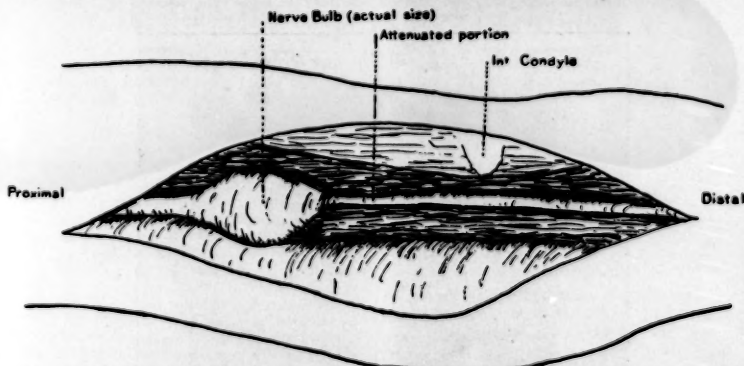


PLATE I.—Ulnar nerve and neuroma freed from bed of scar tissue, as they appeared at operation, 1914. Approximately two-thirds actual size.

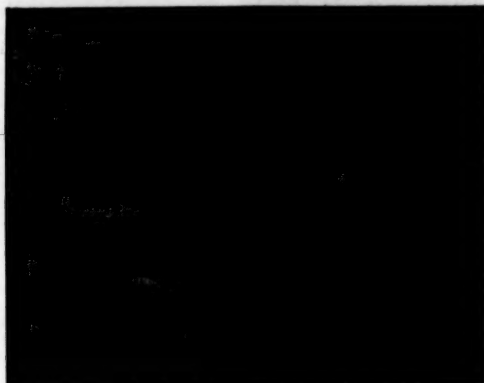


PLATE II.—Neuroma. x60. Shows whorls of myelin. This is characteristic of the whole tumor.



PLATE III.—Neuroma. x1000. Shows individual myelin sheaths which compose the whorls seen in Plate II.



PLATE IV.—Cross section of nerve distal to tumor, the portion freed from scar tissue at operation. At least two-thirds of the "nerve" is connective tissue. x12.

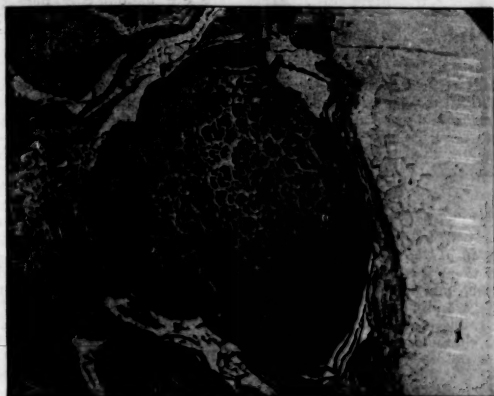


PLATE V.—Detail of small bundle appearing in Plate IV, showing individual nerve fibres interspersed with masses of fibrous tissue. $\times 70$.

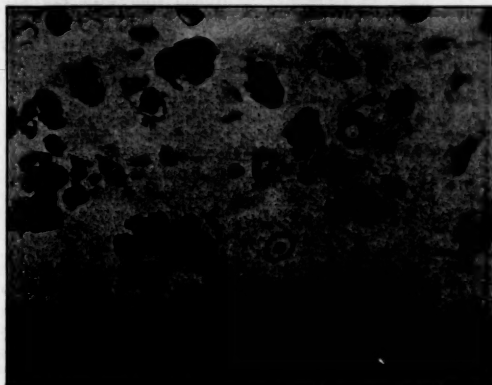


PLATE VI.—Detail of Plate V. Shows normal nerve fibres surrounded by and intermixed with islands of connective tissue. $\times 1000$.



PLATE VII.—Shows marked atrophy of thenar and hypothenar eminences of left hand with tendency to "claw" appearance.

nerve and skin closed with S.W., interrupted. Arm extended in splint."

Feb. 28. Wound healed by first intention.

March 2. Arm flexed at right angle. Internal angular splint. Discharged.

On May 23, 1914, she returned and was seen by the writer because another tumor had formed above the scar; it was very tender and pressure caused pain in little finger. There were the same evidences of ulnar paralysis as before. This tumor was not interfered with and, as she stated subsequently, it soon went away.

On sending for her, the patient again returned one year later, on Feb. 6, 1915, saying that strength and feeling were the same as before the last operation, but that she was now free from the pins and needles sensation, and there was no pain or tenderness. On examination most of ulnar muscles showed sluggish activity and reacted to faradism. There was still considerable atrophy of the hypothenar muscles, and the characteristic ulnar deformity of the hand. Epieritic sensation absent.

Pathological examination of the tumor and attached nerve follows:—

The material consists of a firm bulbous mass, 1.5 by 1.5 by 0.8 cm. in size, from one end of which protrudes a tissue of similar consistency, oval in cross section, measuring 8 by 5 m.m., simulating in size and consistency a normal ulnar nerve the whole forming a discrete bit of tissue, encapsulated, except at the cut ends.

On sectioning, the bulbous mass is found uniformly dense, and on staining this tissue is found to be almost entirely composed of myelin sheaths arranged in whorls—for the most part the myelin is continuous about a central unstained axis, similar to its appearance in normal nerve tissue.

The appended portion, the ulnar nerve distal to this tumor, is most interesting, and requires detailed study.

The cross section 2 cm. below the tumor shows the tissue arranged in bundles, and on staining, these bundles are found to be of different nature; approximately two-thirds of the cross section is occupied entirely by connective tissue, for the most part of recent formation, though some is of long standing. The remaining one-third consists of several bundles of loose connective tissue, with numerous isolated nerve fibers in its meshes; in places, nerve fibers are in bundles, but in such case the bundle is surrounded and interspersed with dense and young connective tissue, and the myelin in such cases is seen to be greatly disintegrated, assuming the appearance of periaxial degeneration.

In a single cross section of the "nerve" at this point one may see a normal nerve fiber with myelin sheath intact, a group of two or three nerve fibers with connective tissue between, larger groups of degenerated nerve fibers surrounded by and interspersed with connective tissue, and areas of dense connective tissue still in the shape of the above-described islets, but with no vestige of nerve tissue remaining.

One more microscopic finding. In the meshes of the "nerve," most prominent both as to size and number in the neighborhood of the tumor, are seen long uniformly staining fibers and fibrils, not seen to branch, but to change their course frequently or run straight for seemingly indefinite distances. These fibrils are stained only by the Weigert method.

We are undoubtedly here dealing with a neuroma of the ulnar nerve, a true increase in the nerve elements. Interest, however, centers chiefly about the portion of the nerve distal to the tumor. Two-thirds of this "nerve" by bulk is made up of connective tissue, and in the remaining third there are few nerve fibres, and most of these are not normal. What is the state of the nerve elements at this point? There is every reason to believe that there is a progressive degeneration of the nervous tissue and substitution by connective tissue, and that this process has been going on for months. It is impossible to state the underlying cause, or whether destruction of nerve fibres by connective tissue is the primary process. The appearance of the tissue at operation, however, an excessively dense scar tissue (from the accident four years previous) surrounding the nerve in question, places the suspicion on the connective tissue as a cause of pressure, and ischemia, with consequent nerve destruction.

SUMMARY AND DISCUSSION.

Let us review this case with the facts in mind, in order to interpret the findings and their significance.

When first seen the patient had no ulnar paralysis, evidently then the nerve had not been greatly affected by the original knife-cut, and we are forced to believe that the disability was largely due to the formation of scar tissue during the healing process, and found at the second operation.

Recently, in this connection, F. C. Cotton¹ has shown the frequency and mechanism of similar ulnar palsies from fractures of the elbow, due to scar tissue formation.

As the nerve was not removed from its bed of fibrous tissue in 1910, rejuvenation of the nerve was evidently impossible, and we find a painful and tender tumor, which is shown to be a true neuroma, i.e. whorls of myelinated fibers, gradually developing immediately above this obstruction. There is also found an atrophic condition of the nerve distal to the tumor in the area of the scar tissue, showing about two-thirds connective tissue and one-third nerve tissue, the two arranged in such manner that one is forced to believe there had been a slow attrition of the nervous elements, and replacement by the lower type of tissue; the mechanism of this process is best considered as one of compression and ischemia.

After excision of the tumor and of the scar tissue surrounding the nerve, we find a relief from the local pain and the tenderness, and also of the paresthesiae of the fingers, but a return of function only equivalent to that previous to operation. From this it would seem that the paresthesiae were symptoms of irritation of the nerve fibers, and that with removal of the source of irritation these symptoms disappeared, together with local pain and tenderness in the region of the tumor. That more function is not regained may be explained by a loss of vitality of fibers so long out of use, very likely leading to an atrophy of their cells of origin in cord and ganglia.

The second tumor, appearing soon after the operation in 1914, caused anxiety at the time, but its rapid and complete disappearance suggests that it was an exaggeration of the physiological "primary end bulb" of Ballance and Stewart,² and not a true neuroma.

What, then, may we learn from this case? Of interest to the pathologist and physiologist is the progressive formation of scar tissue with consequent progressive degeneration of nerve fibers, resulting in corresponding motor and sensory loss.

The formation of a true neuroma above the area affected suggests the cause of its growth as an attempt of nerve fibers to regenerate, aborted by obstruction distal to it.

From observation of the return of function one year after supposed freeing of the nerve it would appear that regeneration of fibers, shorn of their function for a period of four years, was impossible in this case.

The formation of a second small tumor at the end of the cut nerve of temporary existence, supports the contention of the importance of the "primary end bulb" in regeneration of a peripheral nerve.

To the clinician, neurologist and surgeon, the case teaches the importance of never allowing ourselves to be deceived by an apparently slight accident when in the region of a nerve (perhaps especially in the region of the elbow); if progressive disability occurs, due to nerve involvement, thorough surgical investigation is indicated, with complete freeing of the nerve from scar tissue as early as possible, and precautions taken to prevent the formation of a similar situation. If delayed several years, regeneration may not take place—even though the path for such be carefully prepared.

In the above criticism no excuse is necessary for the physicians and surgeons who dealt with the patient; an absence of the patient for four years at the most critical period is the chief cause of the above train of pathological events.

REFERENCES.

- ¹Cotton, F. J.: An Undescribed Ulnar Nerve Trouble, Due to Tension from Scar, and Its Cure. *Boston Med. and Surg. Jour.* Vol. cxciii, p. 486.
²Ballance and Stewart: The Healing of Nerves. 1901.

Book Reviews.

The Fundamental Basis of Nutrition. By GRHAM LUSK, Professor of Physiology, Cornell University Medical College and Scientific Director of the Russell Sage Institute of Pathology. New Haven: Yale University Press. 1914.

This monograph is the reprint of a lecture delivered by the author in November, 1913, as the anniversary address of the New York Academy

of Medicine. It may be regarded as the nucleus of Dr. Lusk's larger work, "The Elements of the Science of Nutrition," reviewed in the issue of the *JOURNAL* for July 21, 1910 (Vol. cxciii, No. 3). It is intended ultimately for the educated laity, to afford them a better understanding of the principles of nutrition than can be derived from current popular writing. After a brief historical survey of the subject, the elements of nutrition are considered under the aspects of constant need of fuel and protein. Habits of diet are discussed and beriberi is described as a typical disease due to diet deficiency. The criteria of the monetary value of foods are analyzed and there is a useful index of dietetic terms. The book should be of value as a compendious manual in conjunction with the author's larger work.

The Difficulties and Emergencies of Obstetric Practice. By COMYNS BERKELEY, M.A., M.D., and VICTOR BONNEY, M.S., M.D. Second edition, with 302 illustrations. Philadelphia: P. Blakiston's Son and Company. 1915.

This book is an excellent reference book on obstetric complications. There is no book, so far as the reviewer is aware, that brings such a vast amount of material together in such a readable form.

In spite of its many excellent points, there is much that the reviewer cannot agree with: as, for example, the authors advise irrigation of a breast abscess several times a day with hydrogen peroxide; and again, in a forceps delivery they state that when the head has been brought down on the perineum the forceps may be removed and the uterus allowed to expel the child. The authors naturally advise the left lateral position for doing forceps operation, and there can be no criticism of that position, but when the illustrations show the operator's left hand over and about the anus, the reviewer cannot but feel their "aseptic conscience" is not what it should be. The chapter on artificial feeding of infants is totally inadequate and has absolutely no place in such a work. Notwithstanding these criticisms, the volume is a real addition to one's obstetric library.

A Practical Treatise on Diseases of the Skin. By OLIVER S. ORMSBY, M.D., Professor of Skin and Venereal Diseases in the Rush Medical College, Chicago. Octavo, 1168 pages, with 303 engravings and 39 plates in colors and monochrome. Philadelphia and New York: Lea and Febiger. 1915.

Of late years text-book has succeeded text-book on the subject of dermatology, with astonishing rapidity. A large number of these are by American writers. Many of these have attained considerable excellence. Ormsby of Chi-

cago is the last one to take up his pen, and he has produced a very good book of its kind. In one respect the book merits great praise and shows great improvement over most of the recent publications, and that is in the clearness and decisiveness of its literary style. Too many that we have lately been introduced to seem to disregard totally a clear mode of expression. Ormsby's book does not go into details so much as many of its immediate predecessors, and there are fewer references to the literature.

The illustrations are excellent and the type good. It is a conservative book in its attitude to etiology and diagnosis, as well as in its paragraphs on treatment. It will be a safe and valuable book in the hands of the general practitioner.

Collected Papers of the Mayo Clinic, Rochester, Minnesota. Edited by Mrs. M. H. MELLISH. Vol. VI, 1914. Philadelphia and London: W. B. Saunders Company. 1915.

The sixth volume from the Mayo Clinic for the year 1914 consists of eight hundred pages; its general appearance and red binding are now familiar to all surgeons; it has the same beauty and prodigality of illustrations and the same accuracy of imprint. Thirty-one contributors have written eighty monographs, which are classified, as usual, under the general heads of Alimentary Canal, Urogenital Organs, Ductless Glands, Head, Trunk and Extremities, Technic and General Papers. We are impressed by the appearance of such papers as "Choice of Method in the Removal of the Eyeball" and "Tonsillectomy in Children from the Standpoint of the General Surgeon," also "Intestinal Parasites of Minnesota," since one would not expect to find them in reports of clinics which are essentially devoted to general surgery.

It is this year, as usual, impossible to criticize adequately and briefly the collective papers of the Mayo Clinic. A large number of them are valuable monographs based on an enormous number of cases, and almost all of the others are the results of hard work or long experience of highly trained specialists.

The book has become an essential element in the library of every progressive surgeon. It makes available to the reader in a very practical form the practice and results which characterize this extraordinary and essentially American surgical clinic.

The Psychology of the Kaiser. A Study of his Sentiments and his Obsession. By MORTON PRINCE. pp. 112. Boston: Richard C. Badger. 1915.

As an analyst of human character Dr. Prince is always interesting and suggestive. In this small brochure the attempt is made, with what measure of success the future alone can show, to

explain the present world happenings in relation to certain obsessions of the German Kaiser. It is Prince's belief that the Kaiser sees in the Social Democratic party a menace to his deeply rooted wish to be the autocratic ruler of Prussia and the German Empire. By the acceptance of the theory of the divine right, he finds a means for the fulfillment of his wishes which the rising tide of democracy throughout the empire is menacing. Under these conditions, from a psychological standpoint, the defensive instinct of fear has been very vigorously aroused, and this fear is not far removed from the emotion of hate which, in the minds of many writers, has been the predominant attitude of Germany as represented in the Kaiser, especially toward England. Or, as Prince more definitely puts it, the egocentric sentiment of the Kaiser and his fear for himself and his empire, although possibly subconscious, induces an emotional defense reaction. "This defense reaction is anger and the sentiment of hatred." The chapter headings of the book are as follows: The Kaiser's Antipathy, The Kaiser's Prerogatives, The Kaiser's Divine Right Delusion, The German Autocracy and the Army, The Kaiser's Sentiments, The Kaiser's Self-Regarding Sentiment, Aims of the German Democracy, The Real Cause of the Kaiser's Antipathy, The Kaiser's Antipathy an Obsession and a Defense Reaction. It is inevitable that this well written discussion of the Kaiser's personality will be read with varying feelings. It will doubtless appeal rather to the psychologist and to those familiar with modern psychological methods than to the man in the street. The validity of its conclusions is dependent largely upon the acceptance of the premises, and these may well be open to question. It is, however, from the psychological standpoint a fair, if not generous, analysis of perhaps the strongest personality of our time. It will not, we venture to suggest, prove universally convincing.

Diseases of the Skin. By JAMES H. SEQUEIRA, M.D., Lond.; F.R.C.P., Lond.; F.R.C.S., Eng. Second edition. With 48 plates in color and 238 text figures. Philadelphia: P. Blakiston's Son and Company. 1915.

In the preface to this, the second edition of his book on skin diseases, Sequeira announces that many articles have been rewritten and that there are numerous additions. A series of micro-photographs, illustrating the histology of many common affections, is a new feature. There are four new colored plates and 60 new figures in the text. The micro-photographs are good, but the colored plates impress us as only fair. Most of the figures in the text are well up to modern standards. The book is thoroughly English in tone and spirit, and is not overburdened with a recital of conflicting views. The paragraphs devoted to treatment show conservatism and freedom from discursiveness.

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NEWSPAPERS AND PATENT MEDICINES.

THE JOURNAL has received communications severely criticizing the Boston dailies for their advertisements of patent medicines and medical frauds, and urging it to call the attention of its readers to the matter. An examination of these papers certainly shows that some of them at least are not taking an advanced stand on this subject. In fact, most of them are behind the stand taken by some of the dailies of a section of the country which has recently come in for severe criticism on the part of Boston editors. Thus two years ago the *New Orleans Item* announced that it would not print any medical advertising that the most searching examination found to be "violative of truth" or "void of probability." Nor have Boston and Massachusetts, leaders in so many movements for the public good, been conspicuous, at least in recent years, for an advanced stand in regard to patent medicines. Thus Boston is far beyond New York City, the Board of Health of which last

year adopted an ordinance requiring either the registration of the name of ingredients of all proprietary or patent medicines with the board of health, or, in lieu thereof, the printing of the name of each ingredient "conspicuously, clearly and legibly in English, on the outside of each bottle, box or package in which the medicine or medicinal compound is held, offered for sale, sold or given away." The Louisiana State Board of Health adopted the ordinance *verbatim*, and several Western cities and states have under consideration the enactment of similar legislation. The General Assembly of Louisiana last summer adopted a concurrent resolution approving the campaign of the State Board of Health "to rid the State of Louisiana of the pernicious patent nostrums so widely advertised and sold under misleading and fraudulent pretences as to curative properties"; the General Assembly further commended the action of the Louisiana Press Association for its unanimous endorsement of the State Board of Health in its effort to control the patent medicine evil.

Returning to the newspapers: it is interesting to note that the Louisiana Press Association, in addition to endorsing the fight of the State Board of Health on patent medicine frauds, requested the president of the board to furnish the press of the state a list of these nostrums so that they might be banished from the advertising columns. This action is significant in that it shows that newspaper editors who really desire to exclude fraudulent advertisements from their columns find no difficulty in securing expert advice on the subject. Some American newspapers submit their medical advertisements to the American Medical Association for its opinion before publishing them, just as many newspapers consult authorities on stocks, bonds, mines, etc., before accepting advertisements of questionable concerns.

That most of the Boston dailies do not make any serious effort to exclude fraudulent patent medicine advertisements from their columns will be evident to our readers if they will glance over almost any issue of almost any of them. They will find there numerous cases of advertising "violative of truth" and "void of probability," as well as of numerous nostrums the true character of which has often been exposed, such as Eckman's Alternative, "a mixture of alcohol, calcium chloride and cloves, which every intelligent physician knows is perfectly worthless for the cure of consumption, sold at

an exorbitant price—\$2 for eight ounces—under the cruelly false claim that it will save the tuberculous"; Lydia E. Pinkham's Compound; "Plant Juice"; cures for diabetes, kidney and bladder diseases, foot drafts for rheumatism, asthma cures, hair growers, fat reducers, "flesh builders," etc., etc. Especially numerous seem to be those patent medicines which are ashamed to sail under their true colors and are recommended in the columns entitled "Today's Beauty Suggestions," "The Doctor's Advice," etc.; here we find such "simple" things as "spurmax," "canthox," "cadomene," "hypo-nuclane," "balmwort," "sulpherb tablets (not sulphur)," "arbolene," etc.

One of the most interesting examples of the strange bed-fellows which the proprietary medicine and food business makes is frequently to be seen in the advertisements of Sanatogen in the newspapers. Sanatogen, a mixture of 95% casein (better known to the public as cottage cheese) and 5% sodium glycerophosphate (a substance of no therapeutic importance) has been carefully examined by the American Medical Association and the falsity of the claims made for it pointed out. It is a product of German origin, and it is rather amusing to see the large advertisements of Sanatogen, including the enthusiastic endorsement of Sir Gilbert Parker, who has recently been flooding medical men of the United States with anti-German literature.

The history of Sanatogen contains a lesson for physicians, for the latter have contributed not a little to the success of this proprietary food-nostrum; without informing themselves as to its true composition or value, but accepting the statements of the manufacturers, not a few have recommended it to their patients, without any suggestions as to its limitations as a food or its exorbitant price. Unfortunately, other instances of the manner in which physicians have unwittingly aided the exploitation of drugs as patent medicines are to be found. Last spring we noticed in an advertisement of patent medicines at cut rate prices, the name urotropin immediately preceding, we believe, "Var-ne-sis," a typical nostrum of the rheumatism-cure type. Urotropin, of course, is merely a copyrighted name for the U. S. pharmacopoeial hexamethylenamine; as "urotropin" it has been advertised by the owners of the copyright (a German firm) in a manner scarcely less extravagant

¹ From Nostrums and Quackery, published by the American Medical Association.

than Sanatogen, and it was undoubtedly through the recommendations of physicians that it came to be classed as a patent medicine. Every physician knows that in a limited class of cases, with a correct diagnosis and other proper treatment, hexamethylenamine is a most valuable drug; but he also knows that it would be the merest chance if a layman took it in a case in which it would prove of benefit. The end-result would be the same as with other patent medicines: patients would be dosing themselves with drugs which could not possibly do them any good, and would delay the securing of proper medical advice. It may be added that repeated examinations by the U. S. Government and others have shown that the preparations of hexamethylenamine made by American manufacturers are in every respect the equal of the German product and are sold at a fraction of the cost of the latter. So physicians, by using the German proprietary name, have not only contributed to the introduction of what has been classed as a patent medicine, but have unnecessarily contributed to making the United States still more dependent upon foreign nations for even the simplest drugs. Such instances are, however, not common, and now that the medical profession has realized that it is confronted with a proprietary medicine evil in the same way that the public is confronted with a patent medicine evil, it may be confidently hoped that such instances will become rarer.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

IN the issue of the JOURNAL for September 23, we commented editorially on the approaching sixth annual session of the Clinical Congress of Surgeons of North America, to be held in Boston during the week beginning October 25, 1915, and spoke particularly of the series of meetings arranged for the first four evenings of that week. The complete program of these evening meetings has just been issued, and we desire to call it particularly to the attention of the profession.

On the evening of Monday, October 25, there will be first an address of welcome by Dr. Fred Bates Lund of Boston, chairman of the committee of arrangements, followed by the presentation of President William L. Rodman and President-elect Rupert Blue of the American Medical Association. Dr. John B. Murphy of

Chicago, the retiring president of the Congress, will deliver an address which will be followed by the inauguration of Dr. Charles H. Mayo as president and Drs. Herbert A. Bruce and Robert L. Dickinson as vice-presidents of the Congress. The exercises will be closed by Dr. Mayo's presidential address.

On the evening of Tuesday, October 26, the following will be the program of papers:—

Thomas B. Hartzell, M.D., Minneapolis: The Dental Path, Its Importance as an Avenue of Infection.

E. H. Sanford, M.D., Rochester, Minnesota: Studies in the Relationship of Amebiasis to Pyorrhea Alveolaris.

Weston A. Price, M.D., Cleveland: Cinematographic film showing movement of bacteria and amebae.

M. L. Rhein, M.D., New York City: Discussion.

George W. Crile, M.D., Cleveland: Acidosis in Its Relation to Surgery.

Professor Lawrence J. Henderson, Boston: The Nature of Acidosis.

James S. Stone, M.D., Boston. Discussion.

On the evening of Wednesday, October 27, the program of papers will be as follows:—

A. J. Ochsmere, M.D., Chicago: Intestinal Stasis and Its Accompanying So-called Toxemia. Discussion by John G. Clark, M.D., Philadelphia; Professor Walter B. Cannon, Boston; Frank W. Smithies, M.D., Chicago.

Symposium: Plastic Bone Surgery (Illustrated by lantern). Fred H. Albee, M.D., New York City; Harry M. Sherman, M.D., San Francisco; John B. Murphy, M.D., Chicago; Charles L. Seudder, M.D., Boston.

On the evening of Thursday, October 28, there will be a symposium on cancer, the speakers on which are still to be announced; and a symposium on military surgery by Dr. George W. Crile of Cleveland, Dr. Harvey Cushing, Dr. Robert B. Greenough, Dr. Edward H. Nichols, and Dr. Robert B. Osgood of Boston.

This program promises a series of exercises of unusual interest and value in addition to the clinical meetings occupying the days,—a program deserving the attention of every practicing surgeon. Owing to the necessary limit of space and accommodation, however, it is impossible that these evening meetings should be thrown open to the profession at large and, therefore, only those who have registered as members of the Congress can be admitted.

ETHER DAY.

THE annual recurrence of Ether Day, which will be observed as usual at the Massachusetts General Hospital on Saturday of this week, October 16, recalls the story of the original demonstration of ether as an anesthetic in the old dome on that day in 1846. It is believed that the last remaining survivor* of those present on that occasion is Dr. Rufus C. Chapman, a dentist of Newcastle, Me. At that time Dr. Chapman had just begun the practice of his profession at Lynn and was fortunate in obtaining an opportunity to be present at Dr. Morton's demonstration. The events of that momentous morning are so familiar that the narrative needs no repetition. With each return of this anniversary, however, it must be realized that this event of such moment in the history of medicine and of the human race, is steadily passing into more remote time, and that already it is almost beyond the immediate recollection of those still living. The annual observance of this occasion, therefore, becomes of increasing importance, since it serves to prevent the oblivion of the immediate incidents and of the persons concerned in the first demonstration of ether anesthesia. It should be the interest and pleasure of every physician who can do so, to attend the morning exercises at the Massachusetts General Hospital next Saturday, of which the program is printed on the last page of this issue of the JOURNAL. The afternoon exercises are to be of the usual commemorative character, with a leading address by Dr. William W. Keen of Philadelphia. It is expected that this address will be published in full in a later issue of the JOURNAL.

MEDICAL NOTES.

DOG MUZZLING REDUCES RABIES IN NEW YORK.—Twelve hundred negligent dog owners were summoned to court during September by patrolmen of the Health Squad for failure to comply with the dog muzzling ordinance. Of these, only 112 were discharged; 832 paid fines, aggregating \$1034.

Naturally, the Department is much gratified at the strong support this ordinance has received at the hands of the city magistrates. That the enforcement of the law has been beneficial to the people of this city is indicated by figures concerning rabies and dog bites. Thus the number of cases of rabies found in animals examined in the Health Department's laboratories decreased from 64 in the second quarter of 1914 to 15 during the corresponding quarter of this year. During the same period a considerable reduction

* Since this was in press we have learned that Dr. Chapman died on Aug. 6, 1913, at the age of 90 years.

was also observed in the number of persons examined for dog bite.

WAR RAISES NEW YORK'S DEATH RATE.—An analysis of the mortality figures compiled by the Department of Health shows that during the past week, there were 77 more deaths reported than during the corresponding week of last year. Over forty of these, however, are accounted for by the increase of the city's population.

The diseases principally responsible for this increased mortality were diarrheal diseases, particularly under five years of age, whooping cough, heart disease and pulmonary tuberculosis. On the other hand, measles, diphtheria, bronchitis and broncho-pneumonia and diseases of the nervous system showed a decrease.

The total number of deaths reported during the week was 1209, with a rate of 10.86 as compared with 1132 deaths and a rate of 10.58 for the corresponding week of last year. The rate for the first forty weeks of 1915 is 13.37, as compared with 13.81 for the first forty weeks of 1914. According to the statisticians of the Department of Health, the death rate of the city has unquestionably been affected by the change in immigration and emigration that has occurred during the past year as the result of the European War, particularly as the city has lost large numbers of individuals between the ages of 15 to 40 years, i.e. at the age period when the death rate is the lowest.

The effect of the war upon municipal vital statistics is also reflected in a report of the city of Hamburg for March, 1915, which has just reached the Department of Health. In that city there was a falling off of 210 marriages during the month, as compared with the previous March, and a difference of 2.2 in the marriage rate. The Hamburg birth rate for March, 1915, was 2.6 lower than the average for the previous ten years.

PREVALENCE OF MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for Sept. 24 states that during the month of August, 1915, there were in Ohio 20 cases of cerebro-spinal meningitis, 100 of poliomyelitis, 91 of smallpox, and 581 of typhoid fever. During the same period, there were in Maryland 23 cases of poliomyelitis and 555 of typhoid fever. In South Carolina there were 66 cases of pellagra and 250 of typhoid. There were 50 new cases of pellagra in Nashville, Tenn., during the week ended September 4.

FOOT AND MOUTH DISEASE IN CHICAGO.—Report from Chicago on October 4, states that foot and mouth disease has recurred in one of the large herds in the local cattle yards. 170 animals were slaughtered on that day in an effort to check the infection.

NEW YORK RADIIUM INSTITUTE.—Report from New York states that on October 5, contracts

were made in that city for the purchase of \$120,000 of radium for the New York Radium Institute which is to be established on 72nd Street in that city. This institute will devote itself to the philanthropic treatment of cancer and other diseases for which radium may be a therapeutic agent, on the analogy of the radium institute of London.

A NEW SOCIETY FOR THE CONTROL OF FEEBLE-MINDEDNESS.—There has recently been formed a society interested in the care and the control of the feeble-minded, calling itself "The Committee on Provision for the Feeble-minded" and expressing its purpose to be "to disseminate knowledge concerning the extent and menace of feeble-mindedness and to suggest and initiate methods for its control and ultimate eradication from the American people." The membership of the society includes members of State boards and commissions from five States—Indiana, Pennsylvania, Massachusetts, New Jersey, Virginia; superintendents and board members of institutions for the feeble-minded in New York, Ohio, Pennsylvania, Massachusetts, New Jersey and Minnesota; representatives of the National Committee for Mental Hygiene, the Eugenics Record Office, the Wistar Institute of Anatomy of Pennsylvania, the Vineland Laboratories, Johns Hopkins University and Stanford University; Judges of Juvenile Courts from New York and New Jersey; and others who have been prominent in doing or supporting social welfare work.

The executive work of the committee will be in the hands of Mr. Joseph P. Byers, formerly Commissioner of Charities and Correction of the State of New Jersey. Mr. Alexander Johnson, the former Director of the Extension Department at Vineland, now merged into the Committee on Provision, has become the field secretary of the new organization. The committee includes: Dr. Walter E. Fernald, Superintendent of the School for Feeble Minded at Waverley, Mass. The work of the Committee on Provision is being financed by private subscriptions from those interested.

YELLOW FEVER AT PANAMA.—Report from Panama on October 5, states that a death from yellow fever occurred on that day at the Ancon Hospital. This is the first case of the disease which has occurred in the canal zone for nearly eight years.

BOSTON QUARANTINE STATION.—On October 4, a conference was held in Boston between Dr. L. E. Cofer, assistant surgeon general of the United States Public Health Service, Dr. Allan J. McLaughlin, Massachusetts State Health Commissioner, Dr. F. X. Mahoney, Boston Health Commissioner, Dr. S. B. Grubbs, federal quarantine officer of the port of Boston, Mayor Curley and others, to determine the purchase price which the National Government shall pay to the city for the quarantine station on Gallop's Island. It is estimated the total cost will be \$250,000.

CANCER CONTROL IN MISSOURI.—The Department of Preventive Medicine of the University of Missouri, Columbia, Mo., has recently issued a special cancer bulletin (Medical Series No. 9) containing an article by Dr. F. A. Martin, instructor in pathology, on the early diagnosis and treatment of the disease. The purpose of the bulletin is to call the attention of the public to the work in popular education about cancer which is being done by the American Society for the Control of Cancer, by the American Medical Association, and by other national and state organizations. The importance of early surgical consultation is strongly emphasized and the attention of the public is directed towards the common early symptoms and signs of cancerous disease in various parts of the body. The bulletin closes with an emphatic warning against quacks and their spurious testimonials, pointing out that their method of deception is based chiefly on erroneous diagnosis.

LONG ISLAND COLLEGE HOSPITAL.—The fifty-seventh annual session of the Long Island College Hospital Medical School was opened at the Polhemus Memorial Clinic on Tuesday, September 28. The principal address on this occasion was delivered by Dr. Horace David Arnold, dean of the Graduate School of Medicine of Harvard University.

CONTAMINATION OF CLOTHING THROUGH PUBLIC LAUNDRIES.—Among matters of public health which are arousing interest at this time, the question of the possibility of infection through public laundries is receiving attention. Dr. Dederer of the committee on occupational diseases of the woman's department, National Civic Federation, reports in *Public Health* the results of his investigation of various laundries in New York. He considers the danger of infection to be, first to the employees of the laundry from soiled clothing and second, the contamination of the clean clothing with the soiled. The clean clothing which has been washed in boiling water and passed through the mangles at about 300° temperature may be considered sterilized but the conditions have been found very faulty in protecting this clothing from the soiled clothing taken into the laundry. In the majority of laundries it has been found that the clean clothes are manipulated in the same rooms with soiled ones, and often in close proximity, and the same table is used in places for receiving and delivery.

In France the matter has received much attention. Formerly the great washhouse boats were a feature of Seine scenery in and near Paris. They were an ancient institution, dating from 1623, but in 1885 were so numerous that contamination of the river from them was feared and they were prohibited. In 1905 the French Government made rules for the country which included impermeable bags for reception at the house and transportation of the soiled linen, disinfection before being handled by the workers, gowns for the workers like those in infectious hos-

pitals, washing of hands and face, separation of receiving and delivery rooms, prohibition of eating in the sorting rooms and vaccination certificates for the employees.

HEALTH OF SAILORS IN THE BRITISH NAVY.—There have recently been published figures which show that the percentage of sickness among sailors in the Royal Navy of England from 1902 to 1912 has decreased 10%. The mortality rate has fallen from 5.9 to 3.3. The improvement is accorded to general advance in education, the increased ventilation of ships and the institution of lectures on health.

CONSANGUINITY IN RAT BREEDING.—A press report from Philadelphia on September 29, describes recent researches by Dr. King at the Wistar Institute of Anatomy and Biology at the University of Pennsylvania in the breeding of rats, especially with reference to the effect of consanguinity. Dr. King is quoted as follows: "In-breeding, corresponding to intermarriage in the human family, does not result in injurious effects. On the contrary, we have developed a type 30% larger physically by disregarding consanguinity.

"For 20 generations I have intermarried a brother and sister rat, with the result that I got a rat larger and better physically in every way than the first ones. A rat is a mammal and man is a mammal; therefore, it is not too much to think that the same principle can be applicable to each.

"I firmly believe that if close relatives, carefully selected and of a higher type, were to marry, the result of the union would be a higher type of offspring than from the intermarriage of two other people. The opinion regarding the degeneracy of the offspring of such a union exists because the only races who intermarry are degenerate races, and therefore, you get a race of even greater degeneracy."

As a matter of fact the traditional prohibition of consanguinity in intermarriage is presumably dependent on the greater likelihood in such marriages of intensifying a common family trait. The rapidity with which such traits may become intensified is likely to carry even an advantageous trait to such excess that it becomes disadvantageous by reason of its overemphasis.

A subsequent press report quotes a comment upon this work of Dr. King by Dr. William Ernest Castle, professor of zoology at Harvard University. Dr. Castle has also experimented in rat breeding for a number of years and states as his experience, that with in-breeding, the progeny after a few generations becomes in most instances inferior. Of the application of such experiments to human beings, he is quoted as saying:

"A careful study of statistics obtained in cases where close blood relations have intermarried has shown that there has been a physical

and mental loss in the offspring. There are sound eugenic reasons why first cousins should not marry if the best physical and mental beings are to be produced.

"It certainly would not be justifiable to say that if in the interbreeding of rats healthy specimens are produced, the same reasoning can be applied in the breeding of human beings. Experiments and tests do not justify it."

ERADICATION OF HOOKWORM DISEASE.—The first part of the annual report of the Rockefeller Foundation issued in New York on September 23, describes the work of its international health commission up to the close of 1914 in investigation and eradication of the hookworm disease. After its initial work in the United States the commission undertook two further tasks: first, the extension to other countries of the work of eradicating hookworm disease as opportunity should offer and second, the following up of its treatment and cure through the establishment of agencies for the promotion of public sanitation and the spread of knowledge of the science of medicine.

"The relief and control of the disease is an undertaking of enormous magnitude, as the infection belts the globe in a zone on both sides of the equator, 66 degrees wide and with a population of about 900,000,000.

"Thus far plans have been adopted and work begun for the control of the disease in British Guiana, Antigua, Trinidad, St. Lucia, Grenada and Egypt.

"In addition to the work undertaken in the British colonies, the commission has responded favorably to invitations from several Central American countries and work has been inaugurated in Panama, Nicaragua, Costa Rica and Guatemala.

"The report makes it clear that the international health commission has not undertaken to eradicate the disease in any country. The accomplishment of this result, it is stated, will require the operation of permanent agencies working over long periods, and this should be the work of the governments interested. The commission's sphere of service, it is stated, is to cooperate with governments of foreign countries in organizing and making effective their own agencies.

"In this spirit, the report says, the commission has accepted the invitation of 11 foreign countries during the year to cooperate in the relief and control of the disease.

"In addition to carrying on its work in foreign countries, the international health commission has also undertaken to complete the program of the Rockefeller sanitary commission for the eradication of the hook worm disease in the southern states. This program, the report states, did not contemplate complete eradication under the supervision of the sanitary commission, but aimed rather at a comprehensive demonstration in each state, first of the presence of the disease, and

second, of the method of treating and preventing it. This demonstration is now entering its final stage with the inauguration of the so-called intensive community work, by which, in a limited number of typical communities in each state, it is hoped to show convincingly the possibility of treating every infected person, and at the same time of preventing soil pollution—the only way of preventing the recurrence of the disease.

"In concluding the report, the point is emphasized that the whole of the commission's work is essentially educational, and that its best result is in securing the cooperation of the people in the work of bringing this disease and all other preventable diseases under control."

EUROPEAN WAR NOTES.

APPOINTMENT OF DR. PENHALLOW.—It is announced in a report from London on Oct. 1 that Dr. Dunlap Pearce Penhallow of Boston has been appointed chief surgeon of the American Women's War Hospital at Paignton, South Devon, England, to succeed Dr. Howard Beal. The assistant surgeon will be Dr. Fred C. Collier of Boston.

CHOLERA IN AUSTRIA AND GERMANY.—During the week ended August 7, there were eleven cases and five deaths of Asiatic cholera at Trieste, Austria. During the same week there were in Germany 154 cases and 40 deaths of cholera and 2 cases of typhus fever. The majority of the cholera cases were among prisoners of war. The two patients with typhus were German soldiers, one at Breslau and one in Interfranken, Bavaria. Other cases of typhus occurred during the same period among prisoners of war in Königsberg, Lunenburg, Potsdam, Schleswig and Baden.

In the issue of the *Lancet* for Sept. 18 is the following statement of the prevalence of Asiatic cholera in Europe during the past year:—

"From information which we have obtained it appears that, since last September up to the present time, some 20,000 cases of cholera have been reported in the Austrian Empire, about a third of them proving fatal, and of these the largest proportion have occurred in Galicia and Bukovina, in the area in which military operations on a large scale are now being carried out. At first the disease made its appearance among the prisoners interned, but of late the majority of the cases have been recorded among the civil population. In the month of July of this year 6000 attacks occurred, mostly civilians, in the two above-named provinces. In Hungary more than 3000 cases have come under notice, principally among the military; and in Croatia-Slavonia about 1700 persons have been attacked. In Bosnia and Herzegovina there have been about 700 cases this year. The strain of infection, however, does not seem to be of a particularly virulent kind, and this lends confirmation to the opinion that Austria received the disease

from Southern Russia, where of late years cholera has been prevalent in a mild form. Sick and wounded soldiers from the battlefields of Galicia carried the infection back with them to various other parts of the Austrian Empire, and groups of cases developed in Vienna, Budapest, and other large cities. In the same way cholera was brought by Russian prisoners into Germany, the first cases being reported in November of last year in the Berlin district. This year, in July, there was a marked increase in the number of cases in Germany, and in the last week of that month 215 attacks were recorded, 200 of them among interned prisoners and only 15 among the soldiers guarding them. Cholera has also appeared at Frankfurt-on-Main and at various places in the provinces of Hesse-Nassau, Prussian Silesia, Posen, and Pomerania, as also in the kingdoms of Saxony and Württemberg. As might have been expected from what we know of German methods, anti-cholera inoculation has been largely used to protect the army fighting in the eastern war zone; the cases reported among the German soldiers being older men and those less fitted for active service, who were engaged in the less laborious task of guarding the prisoners' camps and who had not been inoculated. The anti-cholera inoculation no doubt accounts for the comparative absence of the disease from the German army in the field. This protective measure has also been employed by the Austrians, but probably less efficiently. In this connection it is of interest to learn that, although the inoculation was ordered to be carried out in the Austrian force about to be led against the Serbians, the general in command alone, of all his staff, refused to submit to the operation, and it is reported that he was the only soldier of that force who had so far died from cholera. Little definite information has come to hand from Russia as to the incidence of cholera of late in that country, but the fact that Russian prisoners conveyed the disease to Austria and Germany is evidence that it, too, has suffered. It is known, however, that just before war broke out last year cholera was prevalent in the Russian government of Podolia, not far from the Austrian frontier, and also that cases had occurred in Warsaw. During the present year it has been officially announced that the disease was present during August in the district of Kherson, not far from the Black Sea, and also Tiflis and other places in the Caucasus. As regards Turkey, we know that cholera was present during part of 1914 at Adrianople, Constantinople, and in the Dardanelles, at Gallipoli and Tschannak among the Turkish troops. At Smyrna, Trebizond, and other ports of Asia Minor cases were also reported last year, but there is no information available concerning the incidence of cholera in Turkey during 1915. Quite recently the disease has reached Italy, cases having occurred at Venice and Leghorn, probably due to infection from an Austrian source. So far as we know, there have been no

reported cases of cholera in the war zone in Western Europe. Although under different circumstances the presence of epidemic cholera in Eastern Europe might have caused some uneasiness in this country, the present danger may be regarded as comparatively insignificant, for the ports of Northern Europe, such as Libau and Hamburg, at which poorer class travellers from Russia embark for England, are closed; and the same applies generally as regards Austrian and Turkish travellers, to the corresponding ports in the Mediterranean. The season, too, is getting late, for cholera infection brought to our shores late in the year has in the past failed to effect a lodgment."

A YEAR'S RED CROSS WORK.—Mr. Sherman M. Craiger has recently published in the daily press a review of the work accomplished by the American Red Cross in Europe from the outbreak of the war until the withdrawal of its units on Oct. 1.

"The American Red Cross, at the outbreak of the war in August, 1914, tendered to the different countries involved the services of surgeons and nurses, together with supplies and equipment for hospitals, including outfits for sterilization. The offer was gratefully accepted, whereupon Congress consented to pass an act authorizing the society to take over a ship, under our own registry and flag. In answer to an appeal made in the press came the proffer of a Hamburg-American steamer, and it was accepted and chartered as the 'Red Cross' relief ship. Preparations were hurriedly made for its officering and fitting out, \$10,000 worth of absorbent cotton, gauze and other supplies being taken aboard at New York.

"As illustrative of the thoroughness of the society's organizations and methods, sixty of the nurses and surgeons, comprising Units D and F, were landed in England, as originally planned, at the end of September.

"Under Miss Lucy Minnigrode, as supervisor, the nurses for Russia, comprising Unit C, journeyed by train to London and Dundee, sailing from the latter point Oct. 2 for Bergen, and going thence to Stockholm and Petrograd by rail.

"From Portsmouth, England, the Red Cross landed the nurses in Units A and B in France, as well as the supplies for the American Ambulance Hospital in Paris.

"On Oct. 10 the sections for Germany and Austria were put ashore at Rotterdam, and traveled by rail via Berlin. Unit G, which was ordered to Kosel, in German Silesia, was in charge of Dr. Bial F. Bradbury, who was given a hospital building accommodating 100, with a first-class operating room.

"From Berlin the nurses for Austria were ordered to Vienna and Budapest, respectively, the former receiving Unit K, under the direction of Dr. Cary A. Snoddy, and the latter Unit E, with Dr. Charles E. MacDonald in charge.

"The Serbian unit of fifteen persons left New York on a Greek steamer.

"To send these 171 surgeons and nurses abroad, with adequate equipment, uniforms and other necessities; to pay their traveling expenses by land and sea both in this country and Europe, including salaries of \$60 a month for the nurses and \$166 to \$250 for the surgeons; and to bring them home to the United States at the end of six months, cost about \$1200 per capita, including the cost of the *Red Cross*, the relief ship on which they sailed, a total of \$205,000.

"Some conception of the stupendous amount of work done from then on may be gained from the following summary of services rendered to each belligerent Government:—

	SHIPMENTS.	VALUE.
Austria	11	\$97,683
Belgium	12	96,708
England	13	87,845
France	24	216,155
Germany	8	182,795
Italy	2	14,451
Montenegro	3	15,526
Poland	1	7,200
Russia	9	80,613
Serbia	8	130,867
Turkey	2	12,536

"In speaking of the cargoes sent, Miss Mabel T. Boardman, chairman of the National Relief Board of the American Red Cross, said that almost every conceivable thing which could give comfort to the sick and wounded had been donated to the society.

"For example, over 10,000,000 cigarettes reached us for the Allies and German-Austrian armies.

"More than a million yards of gauze have been contributed, 211,000 hospital uniforms, over a million surgical dressings, 31,000 pounds of anesthetic, 892,000 pounds of cotton, absorbent and otherwise, 209,000 articles of clothing for refugees, 70 cases of typhoid and tetanus antitoxin, 10,000 smallpox vaccine tubes, 20,000 mufflers and 28,000 pairs of socks.

"Money was donated for the sanitary commission which went into the Balkan States to fight typhus. We purchased and shipped great quantities of supplies for them, including 358,000 pounds of sulphur, 700,000 bichloride tablets, 7000 gallons of kerosene to use in spraying for the destruction of typhus-carrying vermin, 5600 pounds of formaldehyde, 12,200 doses of cholera vaccine, 500 whitewash brushes, 3000 rolls of ribbon paper to be used in pasting windows to make rooms air-tight for fumigation, hundreds of barrels of old flour for making paste, many spray pumps, 35,000 gallons of phinotas oil, 70 bathtubs, 50 step-ladders and 11 automobile trucks.

"Of the designated funds which we have distributed, those to be sent to and spent in and for Germany have been in excess of all others. My estimate is that the Germans in this country have given not less than two millions direct for

relief in their Fatherland, and in one respect this must be classed as an American contribution.

"We have spent over a million dollars in actual cash for Belgium, and about half as much more for the other fighting nations in Europe."

"In the sure knowledge that a maximum amount of good has been accomplished with the means at its command, the Red Cross, at this writing, is preparing to recall the American personnel in Europe. On Aug. 25 three nurses arrived here from Kiev, Russia, where they had served practically a year, twice their enlisted term. Fourteen other detachments sailed for home during September, and it is expected that by the middle of October only two of our units of surgeons and nurses will be left to represent the American Society in the Old World. They are stationed in Belgium, where the need is of the greatest, and will be continued as long as funds are available."

WAR RELIEF FUNDS.—On Oct. 9 the totals of the principal New England relief funds for the European war reached the following amounts:

Belgian Fund	\$274,061.10
St. George's Fund	45,674.19
Surgical Dressing Fund	1,805.00
Red Cross Fund	1,362.58
War Children's Fund	347.50

BOSTON AND NEW ENGLAND.

BEQUESTS FOR CANCER RESEARCH.—It is announced that a bequest of \$25,000 has been given to the cancer commission of Harvard College by will of the late William Endicott. Another bequest of \$23,250, from the estate of Julia M. Moselet, has been made for the work of the cancer commission in the city of Boston.

EXAMINATION FOR MENTAL DEFICIENCY IN STATE PRISON.—The State Board of Insanity, at the request of the Massachusetts Prison Commission, has undertaken a psychiatric and psychological investigation at the Massachusetts State Prison in Charlestown with the purpose of determining the number of psychotic and defective individuals at present confined in the institution, and the results obtained from examination of the first group of criminals is published in the latest report of the State Board of Insanity (Bulletin No. 13, September, 1915). The report states as follows:—

"The object of the psychological study is to determine the intellectual status of the subjects, and to discover, if possible, mental reactions characteristic of criminal and delinquent individuals. To determine the intellectual status, the Yerkes-Bridges Point Scale (devised at the Psychopathic Hospital by Dr. R. M. Yerkes and J. W. Bridges) is used, supplemented by the Binet-Simon Scale when diagnosis by the Point Scale is uncertain.

"The diagnosis of mental deficiency, or feeble-mindedness, is made on the basis of a positive history and a low intellectual grading. No subject is diagnosed feeble-minded unless he grades below twelve years' mental age by the Point Scale. By using the twelve-year Point Scale age as the border line for feeble-mindedness, instead of the twelve-year Binet age, which is the standard limit commonly accepted, we ensure a diagnosis free from error, as it has already been proved that a subject who grades twelve years by the Point Scale must grade eleven or less by the Binet Scale. In our diagnosis of feeble-mindedness, we have followed the standard that a subject who grades between eight and twelve years is classified as a moron, and a subject who grades between three and seven years is classified as an imbecile.

"By the end of July, 1915, 100 cases had already been examined by Dr. Stearns, following the alphabetical order in which the inmates are catalogued at the prison. Of this group, 47 were given a psychological examination, because their social, criminal and medical histories were found to be suggestive of mental deficiency.

"Twenty-three of the 47 cases have been diagnosed as feeble-minded and 5 as border-line cases. Of the 23 feeble-minded cases, 2 fall in the imbecile group, 8 are classified as low-grade morons and 13 as high-grade morons. All of these 23 defective subjects are committable cases to institutions for the feeble-minded.

"A further, intensive psychological study is to be made on the inmates of the State Prison with the hope of finding characteristic reactions of the criminal and delinquent individuals, and a comprehensive report of the psychological findings will be prepared in the course of a year, after the study of all the inmates of the institution has been completed."

Massachusetts Medical Society.

ABOLITION OF WRITTEN EXAMINATIONS.

At a special meeting of the Supervising Censors, held October 6, 1915, it was voted in accordance with the authority conferred by Chapter V, Section 1, of the by-laws, that the written examination previously required of applicants for fellowship in the Society, be abolished. The suggestion marked No. 3, of the special committee appointed by the Supervisors at their annual meeting in 1914, and published in the JOURNAL, June 24, 1915, page 952, was adopted by vote. It is as follows:—

"3. Abolition of written examination; and reliance on the attainment of a degree from a school recognized by the Society, and the passing of the State Board as presumptive evidence of preliminary training; with reliance on the oral examination by the Censors to check up any doubts in individual cases, the chief function of

the Censors being to determine whether or not the candidate gives evidence through his record and his general bearing that he is desirable as a member."

It was voted further that the committee appointed last June be requested to prepare a set of examination papers that may aid the censors in conducting the oral examinations.

Voted by the Council, October 6, 1915. That the Librarian be instructed, until otherwise ordered, to furnish the business manager of the BOSTON MEDICAL AND SURGICAL JOURNAL by December first of each year, with the number of members of the Society entitled to receive the JOURNAL on March 1 of that year, and that that number be considered the minimum number of journals to be paid for by the Society in each respective year.

Voted: That the next annual meeting of the Massachusetts Medical Society shall be held in Boston, June 6 and 7, 1916.

(Signed)

W. L. BURRAGE, M.D.,
Secretary.

October 7, 1915.

Miscellany.

PATENT MEDICINE PROSECUTIONS.

In another column of this issue of the JOURNAL we have commented editorially on certain aspects of the patent medicine problem in its relation to the daily newspapers. It is interesting in this connection to note that two bills of information have recently been filed in the United States District Court by the local United States District Attorney, one against the Lydia E. Pinkham Medicine Company of Lynn on the charge of violation of the pure food and drug act, and one against J. M. Grosvenor and Company for similar violation in the shipment of Bell-Cap-Sie plasters. In the former bill it is alleged that a shipment of a dozen bottles of the Pinkham Vegetable Compound was fraudulently labeled as to medicinal properties.

The United States Department of Agriculture has recently issued a statement of over 50 legal actions which it has successfully terminated against patent medicine manufacturers for fraudulent claims as to the curative powers of their products. These actions have been conducted under the Shirley Amendment to the food and drugs act, which prohibits false and fraudulent claims as to the curative or therapeutic effects of drugs or medicines.

"Criminal prosecutions against the manufacturers were brought in 25 cases, but in 31 instances the falsely and fraudulently labeled medicines were seized while in interstate commerce. Claims made by the manufacturers for the curative powers of these preparations ranged from tuberculosis, smallpox and diphtheria, to coughs, colds and scalp diseases. A number of other criminal prosecutions and seizures are pending in various Federal courts throughout

the United States because of alleged violations of the Shirley Amendment, similar to those which have already been tried. The officials charged with the enforcement of the Food and Drugs Act are of the opinion that the evils of the patent medicine business can be stopped only by the most drastic action.

It is pointed out that traffic in medicines for which false and fraudulent claims are made is not only an economic fraud of the worst kind, in that a worthless preparation that costs but a few cents is frequently sold for a dollar or more a bottle, but that health, and even life, is endangered by failure to secure the service of a physician in such serious diseases as tuberculosis, diphtheria, pneumonia and scarlet fever, until too late, because reliance may have been placed in the curative powers of some worthless preparation which is claimed to be a never-failing remedy. The deluded victim may not realize his danger until the disease has reached a stage too far advanced for even the ablest physicians to cope with it. Effective treatment depends in most cases on applying it during the early stages of the disease.

The Houchens Medicine Company, of Baltimore, Md., pleaded guilty to the charge that a preparation called "Family Physician" and shipped by them into interstate commerce, was falsely and fraudulently labeled. Among the many diseases for which this medicine was recommended by the manufacturers in statements appearing on the labels and accompanying circulars, were diphtheria, scarlet fever, typhoid fever, smallpox, bronchitis, neuralgia, croup and all diseases of the throat and lungs. The following quotations from the label, carton, or circular are interesting: "The Public is hereby assured that this is the Genuine and Original Family Physician. . . For fever you need not give anything else but this Medicine, it will keep the rash out itself. . . For cases of Small Pox take plenty and often—Use freely. Give no hot teas, just give the medicine and what pimples are under the skin will come out; the rest will be carried off by the medicine. . . Also a wonderful and positive remedy for dyspepsia, keeps measles out nicely, regulates the bowels without trouble, and by purifying the blood prevents your liability to disease."

Analysis of the product, which was claimed by the manufacturer to be effective in the treatment of so many virulent and contagious diseases, as well as a variety of minor ills, showed that it was a syrup containing 19.2% non-volatile matter, 8.9% alcohol, anise, and a vegetable cathartic drug. The Government, therefore, charged that the medicine did not contain ingredients or medicinal agents effective for the relief and cure of the diseases which it was claimed to cure. The court imposed a fine of \$75.

A plea of guilty was entered by H. A. Ingham and Company of Vergennes, Vt., to the charge that statements and claims as to curative powers of a product called "Dr. H. A. Ingham's Vege-

table Expectorant Nerve Pain Extractor" were false and fraudulent. An analysis of a sample of the product by the Bureau of Chemistry showed the same to contain alcohol, 86%; opium alkaloids, camphor, capsicum, and vegetable extractive matter. The Government, therefore, alleged that the medicine did not contain ingredients or medicinal agents effective, as the labels or circulars asserted, to subdue raging fever, or to cure typhoid fever, lung fever, scarlet fever, rheumatic fever, cholera, dysentery, sunstroke, diphtheria, bleeding at the lungs, nervous exhaustion, or piles, or to prevent fits of apoplexy and epilepsy when coming on, or to heal without inflammation or suffering all wounds, sprains, or burns, or to break up a felon, or to cure congestion of the lungs, pleurisy, fits of apoplexy, chronic rheumatism, paralyzed limbs, and croup.

It was also alleged by the Government that the statements "For teething and restless children, it is not only safe and harmless, but positively beneficial; it agrees with the most tender child or feeble infant," were false and misleading in that they were of such nature as to mislead the purchasers into the belief that the article contained no harmful or poisonous ingredient, whereas, in fact it did contain morphin and other opium alkaloids of a poisonous and deleterious nature, such as might prove harmful and deleterious to the health of tender children and feeble infants, and other persons, if consumed by them. The court fined the defendant \$100.

Four thousand and ninety-two bottles of "Father John's Medicine" were seized in Philadelphia, Pa., it being alleged in the libel that the labels on the bottles and on the pasteboard packages containing the bottles bore statements regarding the curative effects of the medicine that were false and fraudulent. Claims were made by the manufacturers for the efficacy of the medicine in the treatment of consumption, coughs, colds, croup, asthma, bronchitis, sore throat, whooping cough, pneumonia, catarrh, rickets, and a number of other ailments. A judgment of condemnation and forfeiture was entered, and it was ordered by the court that the product be delivered to Carleton and Hovey Company, Lowell, Mass., upon payment of all the costs in the proceedings and the execution of a bond in the sum of \$5,000, to insure that the goods would not be sold unless truthfully relabeled.

A verdict of "guilty" was rendered against the American Laboratories, a corporation located at Philadelphia, Pa., for shipping into interstate commerce a product called "Bad-Em-Salz," which it was alleged was falsely and fraudulently labeled. An analysis of a sample of the product showed that it consisted of common salt, Glauber salt, baking soda, and a small amount of tartaric acid. It was claimed by the manufacturers that this preparation reproduced the medicinal properties of the great European springs famous for centuries for the cure of dis-

eases of the stomach, intestines, liver, kidneys, or bladder, and that it represented the medicinal agents obtained by the evaporating of the water from famous European springs. The Government alleged, among other things, that these claims were false and misleading. It was also alleged that the statements in the circular indicating that the preparation contained ingredients or medicinal agents effective for dissolving gall-stones, for the prevention of gastritis, for curing diabetes, for preventing or checking chronic inflammation of the kidneys, and for relieving catarrh of the bladder, were false and fraudulent. A fine of \$100 was imposed by the court."

Correspondence.

A CHINESE AUTOPSY.

CHANGSHA, HUNAN, CHINA, August 29, 1915.

Mr. Editor: It may be of interest to your readers to hear a word about the first official autopsy ever performed in this section of China. The absolute refusal of the Chinese to permit post-mortem examination has been a major handicap in the development of western medical education and practice, as not alone were autopsies impossible but material for dissection was unavailable. The first real step of progress was the proclamation of the Board of the Interior of the central government at Peking in 1913 declaring that autopsies and post-mortem dissection for educational purposes were legalized. Thus, for the first time in China, post-mortem examination had legal sanction.

Following this in the chief open ports such as Hankow, Shanghai, Canton and also in Peking, post-mortem examinations were soon instituted. But in the interior popular superstition and prejudice are even yet proof against governmental mandates.

Changsha, the site of the Hunan Yale College of Medicine and Hospital, is the capital of a province inhabited by 22 million people. Changsha has been an open port for little more than a decade, and in fact the first foreigner penetrated within the Changsha city wall at the peril of his life less than fifteen years ago. With these bare facts in mind, it is worthy of remark that the first autopsy in Hunan has been performed. The conditions and surroundings were striking in the extreme.

A body was found on the street by the police, and as no relatives or friend could be found, the suspicion of foul play was entertained. A representative of the Commissioner of Police, therefore, waited on Dr. Yen, physician-in-charge of the Yale Hospital, and requested a medical certificate of the cause of death. A formal post-mortem examination was quickly arranged for the following morning at eight o'clock at the municipal poor house, east of the city wall.

Promptly at eight o'clock on Friday morning, the 20th of August, Dr. Yen, Dr. Young and myself arrived at the poor house. This is a large and excellently run institution where the indigent population is provided with work in weaving, basketry and other industries, under conduct of the police. A school is also maintained for poor children. After diligent inquiry we found that the suspected victim of foul play had been buried the night before. In fact the messenger of the Police Commissioner ordering the body held for autopsy, who should have arrived the afternoon before, arrived after we did. We determined at least to inspect the grave, so we headed a procession of police officials, beggars, farmers, coolies carrying instruments, basins, etc., out into the rolling grave-covered hills across the railroad east of the city wall.

It was a mid-August morning and the sun bent down through helmet and umbrella as only a Chinese sun can do. We held council on the grave and finally sent for a detachment of police and a crew of grave diggers. The body was exhumed, the heavy coffin lid laid across two granite tomb stones a thousand years old or more, formed a convenient table. Police, armed with bayoneted rifles formed a large circle. With punksticks burning about us and a coolie swinging a sprinkling can of disinfectant like a large censer, the work proceeded.

The cause of death was ascertained in all probability to be heat stroke superimposed upon an extreme fatty degeneration of the liver. Extensive specimens were secured and the body re-interred. The representative of the police then made an address explaining the importance of determining the cause of death in such cases and Dr. Yen followed with a statement of the need of such work for medical education. The coffin was then sealed with long strips of paper showing that it had been opened by court order. As we returned toward the east gate, we passed a huge poster on a mud wall, issued by the civil governor of Hunan Province at the request of the Commissioner of Police, authorizing the autopsy under the proclamation of 1913.

Thus was established in Hunan a precedent for autopsies and human dissection. Its value to the Hunan Yale College of Medicine can hardly be exaggerated.

Very truly yours,

ALFRED C. REED, M.D.

THE NATURE OF THE NEUROTIC.

SPRINGFIELD, MASS., September 30, 1915.

Mr. Editor: The reading, in today's JOURNAL, of your description of a new theory of the neurotic, by one Adler, a disciple of Freud, but apparently purged of Freudian filth, recalls the description of a proprietary article, where powdered clay masquerades in the verbiage of levigated anhydrous argillaceous mineral matter. But as some pith is always found among the sundry, divers as's and whereas's of a legal brief, so we are delighted to find among Adler's mingled 'subnormal functions,' 'organic inferiorities,' 'defective activities,' 'self-maximizations,' 'full masculinities,' etc., a recognition of the fundamental fact, long recognized by non-rainbow-chasers, that the neurotic is just a plain damn fool, of varying degree, sometimes permanently, sometimes temporarily, unable to control or withstand the multiple stimuli of life, be they endogenous or exogenous.

Very respectfully yours,

PHILIP KILBOY, M.D.

NOTICE.

UNITED STATES NAVY MEDICAL CORPS.

The next examination will be held November 15, 1915, at Washington, D. C.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Norfolk, Va.; Charleston, S. C.; Great Lakes (Chicago), Ill.; Mare Island, Cal., and Puget Sound, Wash.

Applicants must be citizens of the United States, and must submit satisfactory evidence of preliminary education and medical education.

The first stage of the examination is for appointment as Assistant Surgeon in the Medical Reserve Corps and embraces the following subjects: (a) Anatomy, (b) physiology, (c) materia medica, (d) general medicine, (e) general surgery, and (f) obstetrics. The successful candidate then attends a course of instruction at the Naval Medical School, during which course he receives a salary of \$2000 per annum, with allowances for quarters, heat and light, and at the end of the course, if he successfully passes an examination in the subjects taught at the

school, he is commissioned an Assistant Surgeon in the navy.

Full information with regard to the physical and professional examinations may be obtained by addressing the Surgeon General of the Navy, Navy Department, Washington, D. C.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING OCTOBER 2, 1915.

No contributions for the week ending October 2, 1915.

Previously reported receipts.....\$7866.84
Total disbursements.....7310.04

Balance\$ 556.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

NOTICES.

MASSACHUSETTS GENERAL HOSPITAL.

Demonstrations in the Surgical Amphitheatre.
"Ether Day", October 16, 1915.

The demonstrations will be carried out on the time scheduled regardless of attendance.

1. DR. G. A. LELAND, JR. "Mobilization of the Knee in Cases of Fractured Femur." 10.00 A.M.
2. DR. F. G. BRIGHAM. "The Allen Treatment of Diabetes in the Out-Patient Department." 10.10 A.M.
3. DR. O. F. ROGERS, JR. "The Allen Treatment of Diabetes in the Wards." 10.20 A.M.
4. DR. C. J. WHITE. "Food as a Possible Etiological Factor in Eczema." 10.30 A.M.
5. DR. HUGH CABOT. "Demonstration of the Lesions Produced by Different Types of Kidney Infections." 10.40 A.M.
6. DR. W. E. PAUL. "Injuries to Peripheral Nerves." 10.55 A.M.
7. DR. C. A. PORTER. "The Results in Cases of Peripheral Nerve Surgery." 11.10 A.M.
8. DR. C. L. SCUDDER. "The Surgical Treatment of Chronic Duodenal and Gastric Ulcer." 11.25 A.M.
9. Operations by the Surgical and Special Services. 11.40 A.M. to 1 P.M.

The Out-Patient Department, Pathological Laboratory, Zander Room and X-Ray Department will be open for inspection.

ETHER DAY ADDRESS.

Members of the medical profession are invited to attend the Ether Day address by Dr. William Williams Keen, subject, "The Dangers of Ether as an Anesthetic," on October 16, 1915, at 4 P.M., to be held in the lower out-patient amphitheatre on Fruit Street, Massachusetts General Hospital.

HARVEY LECTURE.

The first lecture of the annual series of the Harvey Society will be delivered at the New York Academy of Medicine on October 16, by Professor Charles Wardell Stiles of the United States Hygienic Laboratory, Washington, D. C., on "Recent Studies on School Children with Special Reference to Hookworm Disease and Sanitation."

REPRINTS AND PAMPHLETS FOR THE SURGEON GENERAL'S LIBRARY.

In aid of completing the bibliographies of American physicians in the Library of the Surgeon General's Office, Washington, D. C., it is highly desirable that all reprints and pamphlets not saleable in the general

market should be deposited therein. Physicians who desire that their writings should be preserved in this collection will confer a benefit by sending copies of all separate pamphlets and reprints of their authorship, or bound collections of the same, to

The Librarian, Surgeon General's Office,
Army Medical Museum, Washington, D. C.

RESIGNATION.

Dr. Charles K. Mills has recently resigned, after a service of 22 years, as professor of neurology and psychiatry at the University of Pennsylvania.

APPOINTMENTS.

Dr. Edward C. Briggs of Harvard Medical School, upon his resignation as professor of materia medica, has been appointed by a vote of the Board of Overseers of Harvard, professor emeritus.

Dr. Hugh Barr Gray, of College Point, New York, has been appointed superintendent and resident physician of the Washington Home, Boston, to succeed the late Dr. V. A. Elsworth.

Dr. James Craig Neel has been appointed instructor in obstetrics and gynecology at the University of California Medical School.

Dr. R. G. Pearce has been appointed assistant professor of physiology in the University of Illinois.

SOCIETY NOTICE.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The twenty-fifth annual session of the New York and New England Association Railway Surgeons, celebrating the quarter century anniversary of the organization of the association, will be held at Hotel Astor, New York City, October 21, 1915, under the presidency of Dr. W. H. Marcy, of Buffalo, N. Y.

A very interesting and attractive program has been arranged. Railway surgeons, attorneys and officials, and all members of the medical profession are cordially invited to attend.

GEORGE CHAFFEE, M.D.,
Corresponding Secretary.
338 47th Street, Brooklyn, N. Y.

RECENT DEATHS.

DR. F. FILMORE BURTIS, a surgeon of the steamship *Advance* of the Panama Railroad and Steamship Company, recently died on board the *Advance* and was buried at sea. He was born in 1877 at Troy, N. Y., where he received his education and graduated from the Medical College of Union University. He subsequently became city physician, coroner's physician, police physician and deputy coroner at Schenectady, N. Y. About five years ago he moved to New York and practised his profession in that city until his appointment to the *Advance*. Dr. Burtis was a member of the Schenectady Medical Association. He leaves a brother and two sisters. He was unmarried.

DR. CHARLES W. STILES, who died on Oct. 7, in Somerville, Mass., was born at Albany, Vt., in 1860. He received the degree of M.D. in 1888 from the Boston University School of Medicine. He had practised his profession in Newburyport, Allston, and Somerville. He was rhinologist at the Massachusetts Homeopathic Hospital, and a member of the National Institute of Homeopathy, the Massachusetts and Boston Homeopathic Medical Societies, and the Surgical and Gynecological Society.